

1935

1935

38043/1

KENYA
CO 533/456

38043/1

Rowett Institute Experimental Farm at Nairobi

Report of -

Previous		D. Garson			
Main file		R 297	3/3		
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		R 297	3/3		
		R 300	5/2		
Subsequent		R 298	2/3		
		297	2/6		
		No Garson	1/1		
		299	1/1		
		R 297	1/1		
	24/11				
	24/11				
	26				
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	27				
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	29/8				
	29/7				
	R 309				
	R 297				
	30/1/36				
	31/1				
	2/1				
	2/1				
	R 297				
	15/2				

C.9

Nominal
Nairobi L. R. 82

1

Govt. Printer, No. 542

21-10-35

2

(Orig. regis. on 38043/35)
No. 18.

Tras. Report of Nairobi Livestock Research Station
for the period 1st Jan 1934 to 31st March 1935

Understands that it will be printed in England.

As the procedure in regard to the
Accounting has been questioned
by the Treasury, I have arranged
for the Audited Statements to be
registered on the Main File in order
that Accounts Dept may deal
with this aspect.

As regards the Report itself, it
has been customary for it to
be laid before the Colonial
Advisory Committee and afterwards
printed for distribution. Mr. Hanson
will no doubt take the necessary
action as regards submitting the
Report to the Committee
(See the minutes below No 18 on
23157/34 in this connection)

The Report is longer than usual
as it contains a section
entitled "Notes on the economic
results of the Govt. Stock Farm,
Nairobi, 1933-1935." I think
that it is intended that this
Section should be included in
the printed report.

C. P. [Signature]
24/10/35

The Genl
If you see no objection, I wd.
suggest printing this before it goes to
the C.A.C.A.H.

[Signature]
26/11

I agree in
man. res. etc. - at. new
meeting to the C.A.C. on
Feb. 18th

[Signature]
27.11.35

Sir C. Bottomley
will you please approve printing
of this as usual

J.E.O. 762
27.11

Approved. I presume there
will be no distribution before it
goes to the Council.

[Signature]
28/11/35

30/11/35
To C.A. - Com. - 30/11/35 ✓

DESTROYED UNDER STATUTE (not to be printed Report in orig)

3. Crown Agents
suggests the title of the Report should be
amended to "Nairobi Livestock Research Station
Report for the period 1st Jan. 1934 to 31 March 1935"
& seeks confirmation as soon as possible

11/12/35

I have told C.A. to go
ahead.
Kusby C.A. Horns
at once

4

1 copy attached
remains in R 297
30/11/36

36 spare copies sent
to London 8/12/36

Copy Nairobi Livestock Research Station
Report for the period 1st Jan 1934 to 31st March 1935.
from Watlington 24
(250 copies received without covering letter)

Ref. action.

20 copies of the Report. however
the brief draft arrange for
it to be considered at the
next meeting of the C.A.

Would you please indicate,
in due course, to which
Institutions in this country
copies of the report should be
sent?

Cop. minutes
below No 31-
on 29/5/34

[Signature]
31.1.36

5.

Copies of the Report have been
circulated to members of the Council and they have
been informed that it will be considered at the
next meeting. This takes place on the 18th of
this month. As last year, general distribution
might await this meeting. I should be glad if
the file could be recirculated to me with 23157/34
Kenya on the 17th February

Noted 17/12/36
[Signature]
Pl. take
affirmation
1/2

3rd February, 1936.

6. Extract from the minutes of the 25th meeting
 of the C.A.C. of A. and A.H. 18.2.36

The C.A.C. of A. and A.H. considered the Report at their meeting on the 18th Feby. As will be seen the Council felt that the Station had suffered from an unusual amount of disease during the year under review.

Attention was drawn to an error on page 31 of the Report which suggested that the entire financial responsibility for the Farm had been assumed by the Rowett Research Institute, whereas the Station is actually financed by a running grant from the C.D.F. Perhaps this should be pointed out to the Government of Kenya when the printed copies are sent out.

I suggest that the distribution in this country should be the same as last year, i.e.:-

Imperial Economic Committee	1 copy
Imperial Institute	1 "
Ministry of Agriculture & Fisheries	1 "
Board of Agriculture for Scotland	2 copies
Librarian, M.A., North Ireland	2 "
School of Agriculture, Cambridge University	1 copy
Director, Imperial Bureau of Animal Genetics	2 copies
" Imperial Bureau of Animal Health	2 "
" Imperial Bureau of Animal Nutrition	4 "
" Animal Nutrition Research Institute	1 "
" National Institute for Research in Dairying	1 "
East African Trade and Infn. Office	1 "
	20 copies

Lord Plymouth, Mr. Stockdale and I have already got copies.

I have ascertained from the Crown Agents

Agents that the cost of the printing is £14. I submit draft despatch for consen.

C. J. Gerson

26th February, 1936.

I propose to write to the Council in reference to certain comments made by Dr. Anderson & Mr. Smith. They were rather critical of certain matters referred to in the Report, especially in regard to the management of animals.

P. H. Kirkdale
26/2

J. J. Bann
27/2

7 to Kenya (45) (1 Answer)
(w/175 as 4)

Recd. with 17 copies of Report to the Bureau

Recd. for distribution to 12 institutions as in Minute of 26/2
(w/175 as 4)

9. Extract from the minutes of the 29th Meeting of the Colonial Advisory Council of Agriculture and Animal Health on the 28th April, 1936.

?Put by.

12.5.36.

14/1
Chambers

5
28043/1/35 9

EXTRACT FROM THE MINUTES OF THE TWENTY-NINETH MEETING
OF THE COLONIAL ADVISORY COUNCIL OF AGRICULTURE AND
ANIMAL HEALTH HELD AT THE COLONIAL OFFICE ON TUESDAY,
THE 28th APRIL, 1935, AT 11 A.M.

Item 4. Naivasha Livestock Research Station, Kenya.
Report for the year 1934, including the first three months
of 1935. - C.A.C.258. The Council were informed that a
copy of the Minutes of the Meeting had been transmitted to
the Governor of Kenya.

C. O.

38043/1/35 Kenya.

6 m
7 a

Mr. Garson 2/2

Mr. Stockdale 26/2

Mr. Paskin 27/2 p.

Sir C. Parkinson.

Sir G. Tomlinson

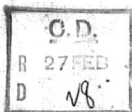
Sir C. Bottomley.

Sir J. Shuckburgh.

Permt. U.S. of S.

Parly. U.S. of S.

Secretary of State.



29 February, 1936.

Sir,

DRAFT.

SK

KENYA.

NO. 145

Gov.

I have etc. to ack. the

(1) receipt of your despatch No.542 of the 21st October transmitting the Report of the Naivasha Livestock Research Station for the period 1st January, 1934 to 31st March 1935, together with the audited statements of the Naivasha Farm Operating Account and the Naivasha Farm Fund Account for the year ending 31st March, 1935.

2. The Report has been printed at a cost of £14 and one hundred and seventy-five (175) copies are being sent to you under separate cover. I shall be obliged if you will arrange for the distribution of copies to the various

FURTHER ACTION.

175 Copies
refer to 3
under 209. com.

Colonial

Colonial Governments and institutions out-

side the United Kingdom that are likely

to be interested in animal ~~health~~ husbandry.

Copies are being sent to the following

institutions in this country:-

Imperial Economic Committee.
Imperial Institute.
Ministry of Agriculture & Fisheries.
Board of Agriculture for Scotland.
Ministry of Agriculture, Northern Ireland.
School of Agriculture, Cambridge University.
Imperial Bureau of Animal Genetics.
Imperial Bureau of Animal Health.
Imperial Bureau of Animal Nutrition.
Animal Nutrition Research Institute.
National Institute for Research in Dairying.

3. The Report was considered by the

Colonial Advisory Council of Agriculture and

Animal Health at their Twenty-eighth Meeting

on the 18th February. ^{the} Council expressed the

view that ~~the~~ station had suffered from an

abnormal amount of disease during the period

under review. ^{the comments} of certain members of the Council

4. It was noted that there was an

erroneous statement on page 31 of the Report

which suggested that the entire financial

responsibility for the Farm had been assumed

by the Rowett Research Institute, whereas

actually the funds are provided by means of

C. O.

Mr.

Mr.

Mr.

Sir C. Parkinson.

Sir G. Tomlinson

Sir C. Bottomley.

Sir J. Shuckburgh

Permt. U.S. of S.

Parly. U.S. of S.

Secretary of State.

a grant from the Colonial Development

Fund.

I have, etc.

(Signed) J. H. THOMAS

DRAFT.

FURTHER ACTION.

*caused from drought
and also*

*are being sent -
officially by my Agricultural
division to the Director
of Agriculture.*

8 6

EXTRACT from the Draft Minutes of the Twenty-eighth Meeting of the Colonial Advisory Council of Agriculture and Animal Health. Held at the Colonial Office on Tuesday, the 18th of February 1936, at 11 a.m.

4. Naivasha Livestock Research Station, Kenya. Report for the year 1934, including the first three months of 1935. (C.A.C. 258).

The Council had before them the report of the Naivasha Livestock Research Station for 1934, including the first three months of 1935.

DR. ANDREWS said it appeared to have been a most unfortunate year for the Station, with drought and East Coast fever, sheep scab and swine fever. He felt that they had suffered an unusual amount of disease.

MR. SMITH agreed that this report showed a condition of affairs which called more for commiseration than for criticism. He felt, however, that head dipping of sheep should have been feasible, and he considered that it was unfortunate that owing to the danger of swine fever, the value of the whole herd of swine had been lowered by their being kept in a restricted space.

MR. STODDALE drew attention to the error on page 31 of the Report which suggested that the entire financial responsibility for the farm had been assumed by the Rowett Research Institute. He pointed out that this was not the case, as the funds were provided, on the recommendations of the Colonial Development Advisory Committee, from the Colonial Development Fund.

9
5
COLONIAL ADVISORY COUNCIL OF AGRICULTURE AND ANIMAL HEALTH.

C.A.C.258.

NAIVASHA LIVESTOCK RESEARCH STATION, KENYA.

I circulate the report of the Naivasha Station for 1934, including the first three months of 1935. The Council will be asked to consider this report at their next meeting.

36/2/36
It will be remembered that the report for 1935 was considered by the Council at their Twenty-third Meeting on the 9th October, 1934 (C.A.C.201).

A. D. GARGON,
Secretary.

COLONIAL OFFICE.

3rd February, 1936.

111
KENYA COLONY AND PROTECTORATE
DEPARTMENT OF AGRICULTURE

**NAIVASHA LIVESTOCK
RESEARCH STATION**

**Report for the period 1st January, 1934
to the 31st March, 1935.**

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LIVESTOCK RESEARCH STATION, NAIVASHA.

REPORT FOR THE PERIOD 1st JANUARY, 1934 TO
31st MARCH, 1935.

Another unfavourable season, immediately following a very similar season in 1933, which was preceded by two years of locust infestation in 1932 and 1931, has made the period under review the most difficult experienced since the farm was opened as a Livestock Research Station in 1929.

In addition to the drought conditions which persisted throughout the entire period, the prices obtained for all saleable products of the farm, i.e. slaughter stock, butter fat, and wool, have declined below those obtained the previous year.

The annual rainfall in 1934 amounted to only 11.78 in., which is 1.26 in. less than the low record of the previous year, and more than 8 in. below a normal average. With the addition of 2.10 in. which fell in the first quarter of 1935, the total rainfall for the full period of fifteen months only amounts to 13.88 in. The distribution of the rainfall was very unfavourable and at no period was there a really general wet spell. The rain registered was mainly in the form of intermittent local storms, followed as a general rule by bright dry spells, which invariably prevented any material or permanent improvement in the pastures.

It was, therefore, impossible to make any provisions in the form of either veldt hay or fodder crops for what would normally have been the dry season. This, in addition to the fact that there was no balance of fodder in store from the previous year, has been responsible for quite abnormal expenditure in the provision of both concentrated and bulky foodstuffs for the stock throughout the year.

The whole difficult position, as regards pasture for the cattle, was very much aggravated by the outbreak of

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The whole difficult position, as regards pasture for the cattle, was very much aggravated by the outbreak of

East Coast Fever on the lake front pastures below the main road. As there is no cattle dip on that portion of the farm, and it was impossible to move across the road for dipping, none of that area could be utilised for grazing cattle after the end of June. This developed into a very serious setback, as the papyrus swamp on the lake shore would always have provided a living for the cattle when the dry pastures on the higher portion of the farm were completely bare.

It was, therefore, absolutely necessary to reserve the pastures above the main road for the cattle, and to move the flock of grade Merino sheep to the lake-front grazing. This land does not appear to provide good sheep feed, and the flock never did well there. This was, undoubtedly, partly due to the fact that they were always heavily infested with ticks, which caused a lot of lameness and suppurating sores.

There was a further decline in the prices obtained for Butter Fat. The highest pay out by the Kenya Co-operative Creamery during this period being 82 cents per pound in April, 1934, the lowest 50 cents per pound in January, 1934, and the average over the fifteen months 60.99 cents per pound. This resulted in an average receipt of 60.39 cents per pound over 9,063.3 lbs. sold by the farm during the period.

There was never much demand for slaughter stock, and only low prices were obtained. At the same time it must be borne in mind that, as a result of the drought, the stock offered for sale was not in first-class condition for the butcher, and undoubtedly there would have been a better demand had it been so.

Wool realised very much lower prices than the previous year. It is interesting to note that the wool sold in France in 1934 made a net return of 52.83 cents per lb. as against 28.63 cents per lb. for a similar consignment sold on the London market. Full details of the wool sales are shown in Appendix II.

MILK PRODUCTION.

The average number of Grade Cows on the farm per month was 110, the highest number in any month being 114, and the lowest 101. Of these 4 were used as foster

mothers for calves, so that the actual milk production is calculated on an average of 106 cows.

The average number of Grade cows in milk throughout the period was 59; the maximum being 82 in January, 1935, and the minimum 43 in July, 1934. The total cow days numbered 27,008, which is 82 per cent. of the possible total, taking a lactation period of 250 days per year, or 310 days in fifteen months.

The birth rate in the herd for the full period was 93.6 per cent., which is equivalent to 74.8 per cent. per year, excluding still-born and premature calves.

The total amount of milk produced by the Grade cows was 29,975 gallons, which is an average of 282.8 gallons per cow over the full period. The output of butter fat sold from 25,344 gallons of milk separated was 8,976.8 lbs., giving an average percentage of butter fat of 3.54 per cent.

Further details of Milk production costs appear in Appendix I.

Grazing conditions were deplorable almost entirely throughout the fifteen months, and in consequence the expenditure on supplementary foodstuffs was abnormally high.

CALVES.

All calves were hand reared, with the exception of four pairs which were suckled by foster mothers. Grazing was never sufficiently good to permit the foster mothers and calves to exist without any additional feeding, as they would have done in a normal season; and concentrates were fed to the dams, and to the calves from one month old onwards. These calves at weaning compared favourably with those entirely hand reared.

The hand-reared calves were fed entirely on whole milk for the first three weeks increasing gradually to a maximum of one gallon. From the third to the sixth week a gradual change over to separated milk was made, until at the end of the sixth week the calves were receiving $1\frac{1}{2}$ gallons of separated milk per day. This amount of separated milk was continued until the end of the fifth month. During the sixth month the separated milk would normally have been reduced to nil, but this year, on account of the lack of pasture, the feeding of skim milk was continued after

4

East Coast Fever on the lake front pastures below the main road. As there is no cattle dip on that portion of the farm, and it was impossible to move across the road for dipping, none of that area could be utilised for grazing cattle after the end of June. This developed into a very serious setback, as the papyrus swamp on the lake shore would always have provided a living for the cattle when the dry pastures on the higher portion of the farm were completely bare.

It was, therefore, absolutely necessary to reserve the pastures above the main road for the cattle, and to move the flock of grade Merino sheep to the lake-front grazing. This land does not appear to provide good sheep feed, and the flock never did well there. This was, undoubtedly, partly due to the fact that they were always heavily infested with ticks, which caused a lot of lameness and suppurating sores.

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The hand-reared calves were fed entirely on whole milk for the first three weeks increasing gradually to a maximum of one gallon. From the third to the sixth week a gradual change over to separated milk was made, until at the end of the sixth week the calves were receiving $1\frac{1}{2}$ gallons of separated milk per day. This amount of separated milk was continued until the end of the fifth month. During the sixth month the separated milk would normally have been reduced to nil, but this year, on account of the lack of pasture, the feeding of skim milk was continued after

the sixth month, at the rate of 1 gallon per calf per day whenever the milk was available. Concentrates, in the form of one part of simsim cake to three parts of wheat bran, were offered after the age of one month, commencing at $\frac{1}{2}$ lb. per day and increasing to 2 lbs. per day at the end of the fourth month. Minerals, in the form of Bone Meal and Salt were included in the concentrates at the rate of 3 per cent. by weight. The roughage fed was in the form of either veldt hay or green lucerne, each calf having consumed approximately 400 lbs. of hay at the age of six months. Here again it was impossible to discontinue the feeding of both roughage and concentrates after the age of six months, as there was practically nothing for the calves to pick up on the pastures, and supplementary feeding was continued. The absence of bedding was a serious drawback throughout the period, and it was very difficult to keep the calves comfortable in their pens. This resulted in rather disappointing live weight gains.

The birth weight of the Grade Calves was low, the average being 53 lbs. There was no case of Bacillary Necrosis, and of the seventeen deaths which occurred six were weaklings from birth, five died from hoven, two from vegetable poisoning, one from dip poisoning, two from scour, and one was injured and had to be destroyed.

Twenty-five calves were sold as vealers at about one week old, and twenty-six were killed and fed to the pigs, all these being bull calves.

A feeding experiment with three separate groups of six female calves in each group was commenced in September, details of which appear in the experimental section.

GRADE STEERS AND HEIFERS.

As previously stated, on account of an outbreak of East Coast Fever, both herds had to be moved from the lake-front pastures to the top farm at the end of June. As soon as they were moved the usual dipping period of seven days was changed to five days; and hand-dressing on the third day after dipping was commenced. Only one case of E.C.F. occurred. There was no further suspicious case, which proved to be negative on sending slides to the Research Laboratory.

From the end of June until the beginning of October both herds were maintained on the east boundary of the

farm, adjoining the Naivasha Township. At the beginning of October it was decided to move the steers to the Veterinary Quarantine Station at Naivasha where grazing was abundant. This step was taken as the steers were losing condition on the farm pasture, and in order to get the best of them ready for the Christmas market. Unfortunately a further outbreak of East Coast Fever occurred at Naivasha in November and December, which accounted for the deaths of seventeen steers, out of a total of seventy-six. The outbreak appeared to be well under control at the end of the year, but one more case occurred in March, 1935.

Thirty-four steers were sold during the period, at prices varying from Shs. 65/- to Shs. 40/- each. Of these twenty-two were sold in Nairobi, and the remainder locally. Of those sold in Nairobi five were condemned by the meat inspector at the slaughter house on account of measles, and were a dead loss to the farm.

The heifer herd was maintained on the top farm until the end of March, 1935, with no supplementary feeding except for some dry maize stalks during December. Only two deaths occurred after their removal from the Lakeside in June, but, although they have been free from sickness, the poor condition of the pasture has not permitted them to make much growth.

LUMBWA NATIVE COWS.

The birth rate in this herd of twenty cows was quite satisfactory at 85 per cent. for the year 1934. Of the seventeen cows which calved six were milked, giving an average yield of 6.53 lbs. per day. The average of the lactation periods was three months, the best being 166 days and still in milk at 31st March, 1935, and the lowest 36 days. With better grazing conditions one might expect the lactations to be considerably longer. An attempt was made to milk the remaining eleven cows which calved, but results from them were so poor that their calves were put back to suckle. All the calves are by a native bull, and show promise of developing into a better class of animal than their dams. The average birth weight of the calves was 35.6 lbs., and compares very favourably with the birth weight in 1932, which only reached an average of 24 lbs.

the sixth month, at the rate of 1 gallon per calf per day whenever the milk was available. Concentrates, in the form of one part of simsim cake to three parts of wheat bran, were offered after the age of one month, commencing at $\frac{1}{4}$ lb. per day and increasing to 2 lbs. per day at the end of the fourth month. Minerals, in the form of Bone Meal and Salt were included in the concentrates at the rate of 3 per cent. by weight. The roughage fed was in the form of either veldt hay or green lucerne, each calf having consumed approximately 400 lbs. of hay at the age of six months. Here again it was impossible to discontinue the feeding of both roughage and concentrates after the age of six months, as there was practically nothing for the calves to pick up on the pastures, and supplementary feeding was continued. The absence of bedding was a serious drawback throughout the period, and it was very difficult to keep the calves comfortable in their pens. This resulted in rather disappointing live weight gains.

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GRADE STEERS AND HEIFERS.

As previously stated, on account of an outbreak of East Coast Fever, both herds had to be moved from the lake-front pastures to the top farm at the end of June. As soon as they were moved the usual dipping period of seven days was changed to five days, and hand-dressing on the third day after dipping was commenced. Only one case of E.C.F. occurred. There was one further suspicious case, which proved to be negative on sending slides to the Research Laboratory.

From the end of June until the beginning of October both herds were maintained on the east boundary of the

farm, adjoining the Naivasha Township. At the beginning of October it was decided to move the steers to the Veterinary Quarantine Station at Naivasha where grazing was abundant. This step was taken as the steers were losing condition on the farm pasture, and in order to get the best of them ready for the Christmas market. Unfortunately a further outbreak of East Coast Fever occurred at Naivasha in November and December, which accounted for the deaths of seventeen steers, out of a total of seventy-six. The outbreak appeared to be well under control at the end of the year, but one more case occurred in March, 1935.

Thirty-four steers were sold during the period, at prices varying from Shs. 65/- to Shs. 40/- each. Of these twenty-two were sold in Nairobi, and the remainder locally. Of those sold in Nairobi five were condemned by the meat inspector at the slaughter house on account of measles, and were a dead loss to the farm.

The heifer herd was maintained on the top farm until the end of March, 1935, with no supplementary feeding except for some dry maize stalks during December. Only two deaths occurred after their removal from the Lakeside in June, but, although they have been free from sickness, the poor condition of the pasture has not permitted them to make much growth.

LUMBWA NATIVE COWS.

The birth rate in this herd of twenty cows was quite satisfactory at 85 per cent. for the year 1934. Of the seventeen cows which calved six were milked, giving an average yield of 6.53 lbs. per day. The average of the lactation periods was three months, the best being 166 days and still in milk at 31st March, 1935, and the lowest 36 days. With better grazing conditions one might expect the lactations to be considerably longer. An attempt was made to milk the remaining eleven cows which calved, but results from them were so poor that their calves were put back to suckle. All the calves are by a native bull, and show promise of developing into a better class of animal than their dams. The average birth weight of the calves was 35.6 lbs., and compares very favourably with the birth weight in 1932, which only reached an average of 24 lbs.

The results show a marked improvement over the previous year, when no cow exceeded a daily yield of 5 lbs. of milk, and all the lactation periods were under six weeks. As this is the first lot of calves got by a native bull it will be a matter of some years before any definite records can be compiled to show whether the young stock will produce better results than the original herd.

SHEEP.

In common with the cattle, the sheep have experienced a difficult time. For the latter half of the year 1934 the Merino flock was maintained almost entirely on the Lake front grazing which is not to be compared with the higher land as a sheep pasture. This procedure was necessitated because the top farm pastures had to be reserved for the cattle after June, and it was undoubtedly unfavourable to the general well-being of the flock. The nature of the lower pasture is not well suited for sheep, and a heavy infestation of ticks was always another discomfort. In addition, sheep scab was very persistent, and was not eradicated until the last month of the period under review.

Six Merino rams were imported from South Africa, and arrived on the farm in September. These rams were purchased on our behalf by an officer of The South African Department of Agriculture, at The Hamilton Sales on 28th August. The sheep were even in shape and size and have strong constitution. They were shorn shortly after arrival, the fleece weight averaging 17½ lbs. each.

The wool clip was satisfactory, the average yield of wool per sheep over the whole flock, including lambs, was 11-16 lbs. representing thirteen months' growth.

In accordance with the practice of previous years, the wool clip was divided into two consignments, approximately equal in quality and weight. One was sold in the London market, and the other in France, for the purposes of comparison. This year the net receipt per pound for the wool sold on the Continent was almost double of that sold in London. The account sales for each consignment appear in Appendix II.

The estimated profit on the Merino flock, making no charge for grazing, in which there were in December 1,042 adult sheep, amounted to Shs. 6,025.23 for the year 1934, exclusive of the first quarter of 1935.

An experiment designed to note the effect of supplementary feeding of green lucerne, and also a concentrate mixture, to ewes before tupping on the subsequent lamb crop was started in December.

No experimental work was done in connection with the Masai and Persian sheep. As the natives in the neighbourhood do not appear to be interested in this flock from the point of view of purchasing breeding stock to improve their own stock, it was decided to dispose of the Masai sheep, and to keep the Black-headed Persian flock only as there seems to be a better demand for this breed of sheep. Two Masai rams and twenty evenly matched ewes were transferred to the Native Training Station at Maseno, and sales of the remaining Masai sheep were effected when possible mainly to local natives. There still remained 8 Masai ewes and 3 Masai lambs, unsold at the end of March, 1935.

PIGS.

The pigs have again suffered a serious handicap throughout the period on account of lack of green fodder, bedding, and a scarcity of separated milk. A further, and probably the most serious, disadvantage is that, owing to the presence of Swine Fever in this district, the whole herd of pigs is confined to a small fenced yard which does not allow sufficient space for the breeding stock and young pigs to get exercise. It is probably mainly due to the latter factor that most of the sows at farrowing are apt to be lazy, and have not produced sufficient milk to rear the litters well. Five young sows which farrowed down with their first litters in February and March of 1935 have given much more encouraging and satisfactory results than the older sows from which we were breeding in 1934. Foodstuffs have never been difficult to obtain, but the expenditure on them has been abnormally high because of the scarcity of skim milk and green stuff.

With the exception of one large black sow, fattening for lard, and her litter, feeding for bacon, all the stock on the farm at the end of the period is of the large white breed.

Two large white boars have been purchased during the year, and three pedigree and one non-pedigree large white boars have been sold. In addition seven bacon pigs and two fat sows have been sent to the Factory, and eight crossbred weaners were sold to the Research Laboratory.

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Two large white boars have been purchased during the year, and three pedigree and one non-pedigree large white boars have been sold. In addition seven bacon pigs and two fat sows have been sent to the Factory, and eight crossbred weaners were sold to the Research Laboratory.

Water has been laid on to the pigsties, and a mud wallow provided in the yard. Since the provision of the wallow there has been practically no sign of sun scald and lice have been much less troublesome than previously. There was a slight infection of Sporadic Mange early in the year, but this was easily controlled by spraying with lime-sulphur dip, and spraying was continued at regular intervals as a safeguard against a fresh appearance of the disease.

Three pedigree large white gilts were taken in for service. Two feeding experiments were carried out and are dealt with in the experimental section.

AGRICULTURE.

It was more evident than ever that an adequate supply of fodder crops must be provided to tide the livestock over the dry season. Twenty acres of maize were planted in May when weather conditions were more promising than at any other period of the year, but, owing to the lack of rain after ploughing, this proved to be a complete failure, and the stunted plants were grazed off by the milk cows during July. A further attempt was made to grow 12 acres of root crops when the short rains were due at the end of the year, but this prospect was again defeated by the dry conditions which followed. A small area, about 11 acres, of lucerne adjoining that already established, was sown in June, but failed to survive.

The 3 acres of lucerne which was sown in 1932 has yielded approximately 15 tons of dry hay over twelve months in 1934. Although useful, this is only a small fraction of the normal requirements of the farm, at the same time it is an encouraging result for such a dry year.

The programme for an increased area of cultivation on the lake front has been steadily progressing since the beginning of 1934. A tractor was hired at the beginning of that year for the breaking and preparing of as much land as possible in readiness to plant during the normal rainy season. When it was evident that the rains had failed, work with the tractor was discontinued on account of the expense, and a team of work oxen was purchased in April to proceed with the cultivation. These oxen were untrained, and it was not until May that they were able to do much work. By September it was evident that more oxen were required to extend the acreage of cultivation, and two more

teams were purchased, together with a number of farm implements. Throughout the period a big proportion of the ox labour has been absorbed by the transportation of foodstuffs, building materials, etc., and this has naturally retarded the progress of the cultivation. But at the end of March 1935 there were 90 acres of land under cultivation, and this area is being extended with a view to having 100 acres prepared for sowing when the rains break.

It is confidently expected that this acreage will provide an ample supply of fodder crops for the requirements of the livestock in future years.

CONSTRUCTION AND DEVELOPMENT.

There are several items to appear under this heading.

The Manager's house had been unoccupied for some years. The paint on the outside walls and the roof, together with that on the roof of the kitchen and boys' quarters, was badly perished and blistered and was renewed with two coats of new paint. Several small repairs in the nature of broken window panes and missing fixtures, were effected in the house, but the framework inside the house was well preserved and required nothing further than cleaning. A rough garage was built behind the house with old material collected from a disused building, and a fresh pit was sunk for the outside lavatory.

The milking shed at the top house, utilised by the cows segregated on account of contagious abortion, was terribly dilapidated and unsanitary. This building was dismantled and an open milking byre with a corrugated iron roof and concrete floor was erected. This building has six milking stalls and a small dairy. The old separator from the Homestead dairy was moved here, and a new separator was installed at the Homestead.

A new cattle crush was erected at the Homestead, mainly for use whilst hand-dressing. The cattle weigh float was moved from its original position and re-set with an off-set from the end of the crush.

The wire cattle bomas and sheep pens adjoining the dips at the Homestead have been re-aligned and reconstructed, posts and rails have been erected to replace the wire.

Water has been laid on to the pigsties, and a mud wallow provided in the yard. Since the provision of the wallow there has been practically no sign of sun scald and lice have been much less troublesome than previously. There was a slight infection of Sporadic Mange early in the year, but this was easily controlled by spraying with lime-sulphur dip, and spraying was continued at regular intervals as a safeguard against a fresh appearance of the disease.

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The 3 acres of lucerne which was sown in 1933 has yielded approximately 15 tons of dry hay over twelve months in 1934. Although useful, this is only a small fraction of the normal requirements of the farm, at the same time it is an encouraging result for such a dry year.

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The wire cattle bomas and sheep pens adjoining the dips at the Homestead have been re-aligned and reconstructed, posts and rails have been erected to replace the wire.

A well was sunk on the lake-front section of the farm, and a hand pump, tank, and temporary drinking trough installed. This was an urgent necessity when the Merino flock were moved there, because they were unable to cross the mud flats on the lake shore to water from the lake itself.

Four dilapidated night paddocks on the east boundary of the farm have been dismantled, and the wire, which was in fair condition, has been saved. There still remains a lot of fencing which will require attention in the near future.

The calf houses and calving sheds used by the contagious abortion herd have been reconstructed. The whole of the framework was rebuilt, and the original corrugated iron on the roof and walls was replaced. A concrete floor was laid throughout the entire buildings, and ten permanent calf pens were erected in one division of it, the remaining portion of it was again divided to make two loose boxes for calving.

Extensive repairs have been executed in the milking byre at the Homestead. Forty new misharagi (olive) uprights were set, to replace the original posts at each end of the stall divisions, and patches of broken cement in the flooring were re-laid.

The long shed, originally used as a milking byre, at the Homestead has been repaired. Three post and rail divisions, with gates, were erected. This gives four loose boxes which can be utilised for sleeping quarters for young cattle or other stock. Repairs were carried out, where necessary, to the stone paving of the floors of three of the divisions.

The legging pen at the sheep dip entrance has been paved with rough flat stone.

The calf pens at the Homestead have been repaired. New netting was fitted, and the framework of the divisions strengthened.

A concrete wallow has been constructed in the pig yard. The main foodstuffs store at the Homestead has been thoroughly repaired. A concrete floor was laid, with new stone foundations, and two new doors fitted, making the building vermin proof.

EXPERIMENTAL.

When the experiments on hand came to an end in December 1933, in view of the general condition of the flocks, and herds, and the grazing, it was decided not to start any new work in the experimental section until the next rainy season.

As the rains never materialised, no programme of experimental work was outlined until August. At this time the farm pastures were in a deplorable state, and there was no prospect of any improvement. The experimental programme was confined, therefore, mainly to feeding experiments which could be conducted with the use of purchased foodstuffs.

GRASSLANDS AND FODDER PLANTS.

A very considerable amount of work expended on this section of the programme met with very little success. Although the season appeared unfavourable it was not thought advisable to neglect the programme agreed upon with the officer in charge of Grasslands Improvement, and a general conclusion was reached that this farm would prove to be a useful dry station for grasslands research work.

The Grasslands Manurial Experiment received its third and last application of fertilisers in accordance with instructions forwarded from the Scott Agricultural Laboratories. As the plots, although fenced, remained practically as sparsely covered as the surrounding veldt, no significant data could be gathered relating to the effect of the fertilisers applied. The extremely low rainfall was again the controlling factor.

Pure Species Plots.—An attempt was made to establish one $\frac{1}{4}$ -acre plot, sown with a mixture of Rhodes grass and hairy Peruvian lucerne, for trial as a hay crop and also for grazing purposes. The seed was sown in May, in a small fenced paddock adjoining the office. A very fair germination of Rhodes grass occurred, but the lucerne only appeared very intermittently. Extremely dry conditions followed in June and July and the lucerne which had germinated did not survive. The Rhodes grass continued to show a certain amount of promise for some months, but never made much growth, and by the end of March 1935 appeared to have died out almost entirely.

A well was sunk on the lake-front section of the farm, and a hand pump, tank, and temporary drinking trough installed. This was an urgent necessity when the Merino flock were moved there, because they were unable to cross the mud flats on the lake shore to water from the lake itself.

Four dilapidated night-paddocks on the east boundary of the farm have been dismantled, and the wire, which was in fair condition, has been saved. There still remains a lot of fencing which will require attention in the near future.

The calf houses and calving sheds used by the contagious abortion herd have been reconstructed. The whole of the framework was rebuilt, and the original corrugated iron on the roof and walls was replaced. A concrete floor was laid throughout the entire buildings, and ten permanent calf pens were erected in one division of it, the remaining portion of it was again divided to make two loose boxes for calving.

Extensive repairs have been executed in the milking byre at the Homestead. Forty new misharagi (olive) uprights were set, to replace the original posts at each end of the stall divisions, and patches of broken cement in the flooring were re-laid.

The long shed, originally used as a milking byre, at the Homestead has been repaired. Three post and rail divisions, with gates, were erected. This gives four loose boxes which can be utilised for sleeping quarters for young cattle or other stock. Repairs were carried out, where necessary, to the stone paving of the floors of three of the divisions.

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Pure Species Plots.—An attempt was made to establish one 1-acre plot, sown with a mixture of Rhodes grass and hairy Peruvian lucerne, for trial as a hay crop and also for grazing purposes. The seed was sown in May, in a small fenced paddock adjoining the office. A very fair germination of Rhodes grass occurred, but the lucerne only appeared very intermittently. Extremely dry conditions followed in June and July and the lucerne which had germinated did not survive. The Rhodes grass continued to show a certain amount of promise for some months, but never made much growth, and by the end of March 1935 appeared to have died out almost entirely.

Further plots of roots of woolly finger grass, and of seed of *Cynodon dactylon* (Tanganyika strain) planted and sown alongside the above, proved to be complete failures.

Cuttings of three varieties of large grasses for trial as fodder crops were planted in plots on the lake front together with one plot of edible canna. The grasses were (a) Napier grass, (b) *Pennisetum giganteum* and (c) *Echinochloa* species. The canna survived but made only very little growth, whilst only a small percentage of the grass cuttings rooted. Of the grasses which did strike the Napier grass made the strongest growth of the three. There was very little to choose between the other two, but both appeared as though they would have made useful fodder plants in a normal season.

A small paddock of about one acre adjoining the Home-stead buildings was planted up with cuttings of Napier grass, and although most of the cuttings were rooted before planting, they did not survive except alongside some open drains from the cow byre, dairy, and calf houses. Another area, also of about one acre, adjoining the lucerne on the lake front, was planted with Napier grass cuttings. These cuttings were very considerably more successful than those just referred to, and a small percentage was well rooted and growing at the end of the year.

Pasture Renovation Experiment.—As a result of drought, attacks by locusts, and grazing by stock, the ground cover of herbage has become extremely poor, and possibly at least half of the existing cover consists of non-graminaceous weeds. It is probable that extensive areas in the drier parts of the country are in a similar condition, and this experiment is designed to find an economically practicable method of bringing about recovery.

The whole experiment embraces four separate sections:

- (1) The protection of an area by fencing, surface cultivation by harrowing, and the sowing of four varieties of grasses in separate strips, which are again cross sown with six strips of leguminous species. One strip in each direction is left unsown.
- (2) Surface cultivation by harrowing and the sowing of both the above grasses and leguminous species in long strips in an area unprotected by fencing. Replicated portions of

the strips are subjected to (a) no treatment; (b) dressing with ashes, in the place of burning which was impossible; and (c) dressing with superphosphate.

(3) The protection of an area of the existing pasture by fencing, and surface cultivation of one-third of this area by harrowing.

(4) The demarcation of an area of the existing pasture as a control. This was neither fenced nor seeded, but one-third was harrowed.

The species used were:

Grasses.—*Chloris gayana*, *Amphiplophus pertusa*, *Phalaris tuberosa* and *Paspalum dilatatum*.

Leguminous Plants.—*Stylosanthes procumbens*, *Trifolium subterraneum*, *Indigofera tetensis*, *Lespedeza sericea*, *Lespedeza striata*, and *Lespedeza stipulacea*.

The whole experiment was put into operation for the short rains in November. But, in view of the very doubtful weather conditions at the time, the plots were reduced to one half of the size originally intended, so that one half of the seed was saved for resowing the plots in the event of a failure at the first sowing. Owing to the dry conditions which prevailed after sowing it is probable that the experiment will have to be renewed with the next rains.

Climatic conditions made it impossible for any work to be undertaken in respect of the fenced paddocks erected in 1932 for testing the reaction of the pasture to different degrees of intensity of grazing by cattle.

DAIRY COWS.

Two groups of six milk cows each were started on experimental feeding at the beginning of December with a view to determining if there is any advantage in supplying their protein requirements by animal protein, i.e. local carcase meal, as compared with vegetable protein in the form of simsim cake. It was thought that this would provide material of interest to farmers on outlying farms where transport costs and storage facilities are important factors.

Further plots of roots of woolly finger grass, and of seed of *Cynodon dactylon* (Tanganyika strain) planted and sown alongside the above proved to be complete failures.

Cuttings of three varieties of large grasses for trial as fodder crops were planted in plots on the lake front together with one plot of edible canna. The grasses were (a) Napier grass, (b) *Pennisetum giganteum* and (c) *Echinochloa* species. The canna survived but made only very little growth, whilst only a small percentage of the grass cuttings rooted. Of the grasses which did strike the Napier grass made the strongest growth of the three. There was very little to choose between the other two, but both appeared as though they would have made useful fodder plants in a normal season.

A small paddock of about one acre adjoining the Homestead buildings was planted up with cuttings of Napier grass, and although most of the cuttings were rooted before planting, they did not survive except alongside some open drains from the cow byre, dairy, and calf houses. Another area, also of about one acre, adjoining the lucerne on the lake front, was planted with Napier grass cuttings. These cuttings were very considerably more successful than those just referred to, and a small percentage was well rooted and growing at the end of the year.

Pasture Renovation Experiment.—As a result of drought, attacks by locusts, and grazing by stock, the ground cover of herbage has become extremely poor, and possibly at least half of the existing cover consists of non-graminaceous weeds. It is probable that extensive areas in the drier parts of the country are in a similar condition, and this experiment is designed to find an economically practicable method of bringing about recovery.

The whole experiment embraces four separate sections:

- (1) The protection of an area by fencing, surface cultivation by harrowing, and the sowing of four varieties of grasses in separate strips, which are again cross sown with six strips of leguminous species. One strip in each direction is left unsown.
- (2) Surface cultivation by harrowing and the sowing of both the above grasses and leguminous species in long strips in an area unprotected by fencing. Replicated portions of

the strips are subjected to (a) no treatment; (b) dressing with ashes, in the place of burning which was impossible; and (c) dressing with superphosphate.

(3) The protection of an area of the existing pasture by fencing, and surface cultivation of one-third of this area by harrowing.

(4) The demarcation of an area of the existing pasture as a control. This was neither fenced nor seeded, but one-third was harrowed.

The species used were:

Grasses.—*Chloris gayana*, *Amphiplophus pertusa*, *Phalaris tuberosa* and *Paspalum dilatatum*.

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The whole experiment was put into operation for the short rains in November. But, in view of the very doubtful weather conditions at the time, the plots were reduced to one half of the size originally intended, so that one half of the seed was saved for re-sowing the plots in the event of a failure at the first attempt. Owing to the dry conditions which prevailed after sowing it is probable that the experiment will have to be renewed with the next rains.

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Two groups of six milk cows each were started on experimental feeding at the beginning of December with a view to determining if there is any advantage in supplying their protein requirements by animal protein, i.e. local carcase meal, as compared with vegetable protein in the form of simsim cake. It was thought that this would provide material of interest to farmers on outlying farms where transport costs and storage facilities are important factors.

The rations fed to each group were as follows:—

Group I— $\left. \begin{array}{l} 1 \text{ lb. of Simsim Cake} \\ 1 \text{ lb. of Bran} \\ 2 \text{ lbs. of Crushed Maize} \end{array} \right\}$ per gallon of milk.

Group II— $\frac{1}{2}$ lb. of Carcase Meal was substituted for simsim cake. A mineral mixture of 2 parts of bone meal and 1 part of salt at the rate of 5 per cent. by weight was included in both rations. The cows selected for each group were as evenly matched as practicable, with regard to age, previous lactation yields, and the periods they have been in milk at the beginning of the experiment. No supplementary bulk feed was given to either group during the experimental period and all the milk yields dropped quickly on account of the grazing deteriorating owing to the failure of the short rains, but both groups had exactly the same pastures. The inclusion of carcase meal made the ration rather distasteful and considerable difficulty was experienced for the first month in getting the cows in Group II to take their full allowance. The substitution of $\frac{1}{2}$ lb. of carcase meal for 1 lb. of simsim cake made the ration fed to Group II slightly more expensive than that fed to Group I.

Milk records for the month of November (i.e. previous to the experiment) and for the experimental period, 1st December, 1934 to 31st March, 1935 are given in the following table.

AVERAGE YIELD PER COW.

	Nov.	Dec.	Jan.	Feb.	March
Group I	lbs. 579	lbs. 530	lbs. 435	lbs. 337	lbs. 345
Group II	...	...	...	...	...
	576	469	400	275	268

Total production per cow during 4 } Group I 1,647 lbs.
months (121 days) experimental period } Group II 1,412 lbs.

Difference in favour of Group I is 235 lbs. per cow, or approximately 2 lbs. per cow per day.

CALF REARING.

The present system of calf rearing employed, as already outlined in the foregoing section of the report, embodies

the principle of utilising the minimum quantity of whole milk. This system is generally applicable when pastures are good, and when supplementary concentrated feeds are relatively cheap. These conditions are entirely the adverse of those experienced on the farm, and in many other parts of the Colony, this year. Milk is very cheap, at about 20 cents per gallon, and grazing practically non-existent. In these circumstances, it is a matter of considerable interest to compare the cost, and results as regards growth, of rearing calves on a ration containing a much bigger percentage of whole milk, with those obtained from rearing on the minimum whole milk ration. An experiment with three groups of heifer calves, six in each group, was started at the end of September with the object of demonstrating the economical use of whole milk in calf raising when grazing conditions are poor and whole milk of low value.

Calf Rearing Experiment.—The experiment was started in September 1934, and concluded in March 1935. Three groups of six heifer calves in each group were fed from birth to six months old. Weights were recorded at birth, weekly for the first two months, and afterwards monthly until the end of six months.

Group I received, per calf over the full period of six months, 170 gallons whole milk, 140 gallons separated milk, 450 lbs. grain, and 400 lbs. of veldt hay. Total cost of feeding Shs. 77/-.

Group II received, per calf over the full six months, 30 gallons whole milk, 185 gallons separated milk, 400 lbs. grain, and 450 lbs. of veldt hay. Total cost of feeding Shs. 49/60.

Group III received, per calf over the full six months, 30 gallons whole milk, 185 gallons separated milk, and 600 lbs. lucerne hay. Total cost of feeding 40/30 Shs.

The cost of feeding, which does not include attendance, is calculated on the following basis: Whole milk 28-7 cents per gallon, separated milk 7 cents per gallon, grain and mineral mixture 4 cents per lb., veldt hay Shs. 60/- per ton, and lucerne hay Shs. 70/- per ton.

The rations fed to each group were as follows:—

Group I— $\left. \begin{array}{l} 1 \text{ lb. of Simsim Cake} \\ 1 \text{ lb. of Bran} \\ 2 \text{ lbs. of Crushed Maize} \end{array} \right\}$ per gallon of milk.

Group II— $\frac{1}{2}$ lb. of Carcase Meal was substituted for simsim cake. A mineral mixture of 2 parts of bone meal and 1 part of salt at the rate of 5 per cent. by weight was included in both rations. The cows selected for each group were as evenly matched as practicable, with regard to age, previous lactation yields, and the periods they have been in milk at the beginning of the experiment. No supplementary bulk feed was given to either group during the experimental period and all the milk yields dropped quickly on account of the grazing deteriorating owing to the failure of the short rains, but both groups had exactly the same pastures. The inclusion of carcase meal made the ration rather distasteful and considerable difficulty was experienced for the first month in getting the cows in Group II to take their full allowance. The substitution of $\frac{1}{2}$ lb. of carcase meal for 1 lb. of simsim cake made the ration fed to Group II slightly more expensive than that fed to Group I.

Milk records for the month of November (i.e. previous to the experiment) and for the experimental period, 1st December, 1934 to 31st March, 1935 are given in the following table.

AVERAGE YIELD PER COW.

	Nov.	Dec.	Jan.	Feb.	March
Group I	579	530	485	337	345
Group II	576	469	400	275	268

Total production per cow during 4 months (121 days) experimental period } Group I 1,647 lbs.
 } Group II 1,412 lbs.

Difference in favour of Group I is 235 lbs. per cow, or approximately 2 lbs. per cow per day.

CALF REARING.

The present system of calf rearing employed, as already outlined in the foregoing section of the report, embodies

the principle of utilising the minimum quantity of whole milk. This system is generally applicable when pastures are good, and when supplementary concentrated feeds are relatively cheap. These conditions are entirely the adverse of those experienced on the farm, and in many other parts of the Colony, this year. Milk is very cheap, at about 20 cents per gallon, and grazing practically non-existent. In these circumstances, it is a matter of considerable interest to compare the cost, and results as regards growth, of rearing calves on a ration containing a much bigger percentage of whole milk, with those obtained from rearing on the minimum whole milk ration. An experiment with three groups of heifer calves, six in each group, was started at the end of September with the object of demonstrating the economical use of whole milk in calf raising when grazing conditions are poor and whole milk of low value.

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Group III received, per calf over the full six months, 30 gallons whole milk, 185 gallons separated milk, and 600 lbs. lucerne hay. Total cost of feeding 40/30 Shs.

The cost of feeding, which does not include attendance, is calculated on the following basis: Whole milk 28-7 cents per gallon, separated milk 7 cents per gallon, grain and mineral mixture 4 cents per lb., veldt hay Shs. 60/- per ton, and lucerne hay Shs. 70/- per ton.

The following table shows the average weight recorded during the experiment:—

	Months old						
	Birth	1	2	3	4	5	6
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Group I ...	61.0	85.5	135.8	180.8	220.2	257.4	303.7
Group II ...	53.7	77.3	107.5	140.3	176.3	214.0	242.8
Group III ...	49.0	67.8	97.3	124.0	153.7	177.8	206.2

The total average gain in weight from birth to six months old was:—

Group I ...	...	...	242.7	lbs.
Group II ...	...	...	189.1	"
Group III ...	...	...	157.2	"

The Group I Calves were all strong thrifty animals at the age of six months, and ready for turning out on to a good pasture with no further feeding.

The Group II Calves were moderately well grown and in fair condition.

The Group III Calves were in rather poor condition, and had not made so much growth, either in weight or frame, as the calves in either of the first two groups. They had received no grain or minerals from birth.

SHEEP.

The absence of twin lambs in the Colony is most noticeable. In older established countries the practice of flushing ewes before the tupping season is almost general. Although no scientific proof of the actual value of flushing in the production of twin lambs is available, flockmasters hold the view that the practice is a strong contributing factor. With this end in view an experiment was commenced at the beginning of December with three groups of maiden ewes.

Group I was a control, fed on natural pasture only.

Group II was fed on green wilted lucerne *ad lib.* only, and natural grazing.

Group III was fed on a mixture of crushed maize (2 parts) and carcase meal (1 part).

The following data is being recorded:—

- The weight of green wilted lucerne and concentrates consumed.
- The condition of the ewes at tupping and lambing.
- The number and weight of lambs at one week old.
- The weight of lambs at one, two, and three weeks old.

As the rams were not turned in until the 1st March, 1935, the final results of the experiment will not be available until the following September.

PIGS.

Experiment I, was commenced on 14th September, 1934, with breeding stock. Four litter sisters, all large white gilts ready for the boar, were divided into two groups of two each before being served. All four were served by the same boar during October. *Group I* was fed on separated milk plus minerals, and *Group II* separated milk with no minerals.

Half gallon of separated milk per head per day was allowed for each group and 6 lbs. per head per day of the same meal ration, which consisted of Barley Meal, Bran or Pollards, Crushed Maize, and Mill Sweepings. The only difference in the feeding of the two groups was that *Group I* was allowed 2 lbs. of minerals for every 100 lbs. of meal consumed, the mineral mixture being, bone meal 25 lbs., ground lime 25 lbs., salt 15 lbs., and sulphur 5 lbs.

The rate of growth of both groups remained very even throughout, and at no time was there any appreciable difference in condition.

One of the gilts, No. 3, in the mineral group aborted her first litter only 4½ weeks after service, and was again served by the same boar 5 days after abortion.

The following table shows the average weight recorded during the experiment:—

Group	Birth		Months old			
	lbs.	lbs.	3	4	5	6
Group I	61.0	85.5	135.8	180.8	220.2	303.7
Group II	53.7	77.3	107.5	140.3	176.3	242.8
Group III	49.0	67.8	97.3	124.0	153.7	206.2

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The following data is being recorded:—

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The rate of growth of both groups remained very even throughout, and at no time was there any appreciable difference in condition.

One of the gilts, No. 3, in the mineral group aborted her first litter only 4½ weeks after service, and was again served by the same boar 5 days after abortion.

The following observations were made after farrowing:—

	Group I Minerals		Group II No Minerals	
	Pig No. 2	Pig No. 3	Pig No. 4	Pig No. 5
Interval between service and farrowing (days)	116	116	114	115
Number of piglets born alive	12	10	7	11
Number of piglets born dead	1	1	2	3
Litter weights at 3 days old (lbs.)	37	35	25	37
Average weight of piglets at 3 days old	3.1 lbs.	3.5 lbs.	3.6 lbs.	3.4 lbs.

The piglets born alive in both groups were strong and healthy and all the sows were producing plenty of milk.

There were only two still-born piglets in a total of 24 in the mineral group, as against 5 in a total of 23 in the group not receiving minerals.

It did not appear, from the condition of the sows at farrowing and the general health of the litters, that there was any decisive advantage in favour of either group.

Experiment II.—This experiment was designed to show whether there is any advantage in feeding minerals to bacon pigs which are already receiving separated milk in the ration.

Two groups of pigs were used for this experiment, eight pigs in the first group and six in the second. The pigs were taken from two litters and were as evenly balanced as practicable at the beginning of the experiment.

Group I received 2 lbs. of minerals per 100 lbs. of meal consumed, and both groups received equal quantities of meal and separated milk per head per day. The meal and mineral mixtures were the same as in *Experiment I*. Separated milk was fed to both groups at the rate of $\frac{1}{2}$ gallon per head per day for the first two months after weaning. It then became scarce and was reduced to $\frac{1}{4}$ gallon for the following fortnight, after which it was not available for either group.

The following is a summary of results:—

	Group I	Group II
	8 Pigs Minerals	6 Pigs No Minerals
Average weight at 3 days old	3.0 lbs.	3.5 lbs.
" " at 21 " " "	11.0 "	13.0 "
" " Weaning (2 months old)...	42.0 "	44.2 "
" " " " " " "	77.0 "	75.7 "
" " " " " " "	119.1 "	115.2 "
" " " " " " "	154.3 "	144.7 "
" " " " " " "	204.0 "	119.2 "
" " Total weight gained (since weaned)	162.0 "	155.6 "
Total Meat consumed	4,768 "	3,576 "
" " per head	596 "	596 "
Meal requirements per lb. live weight gain	3.68 "	3.85 "
Total separated milk consumed per head (since weaned)	34.4 galls.	34 galls.

A slight, though not very material, advantage exists in favour of the group receiving minerals.

APPENDIX I.

Milk Production—Summary of Costs, 1/1/34 to 31/3/35.

Grade Cows.

Number of cows in herd	106
Total production of milk	29,975 gallons
Average yield per cow	282·8 "
Amount of milk separated for butter fat	25,344 "
Total butter fat sold... ..	8,976·8 lbs.
Total butter fat sold per cow	84·7 "

Charges against Herd.

Purchased food	18·3 cents per gallon
Home-grown food	0·2 " " "
Labour	5·8 " " "
Depreciation	24·0 " " "
Bulls, dipping, sundries, etc.	6·2 " " "
Total	54·5 " " "

Cost of production of milk per gallon	54·5 cents
Total revenue from butter fat sold from	Shs. cts.
25,344 gallons milk separated	5,420·43
Return per gallon milk separated	21·4
Loss per gallon milk sold as butter fat	33·1

Note.

The above return does not include the separated milk by-product fed to calves and pigs on the farm, amounting to 22,929 gallons, which, charged to the calves and pigs at 7 cents per gallon, raises the return per gallon of milk to 27·7 cents.

APPENDIX II.

Marketing of Wool, 1934.

Two consignments of wool, of approximately equal quality and weight, were exported to the London and Continental Markets respectively, in July, 1934.

SUMMARY OF ACCOUNT SALES.

1.—Consignment sold in London: 6 bales A Fleeces, 2,884 lbs.; 1 bale A Pieces, 485 lbs.; 2 bales B Fleeces, 1,045 lbs.; 1 bale Locks, 533 lbs. Total 10 bales, weighing 4,847 lbs. net.

	Sh. cts.		Sh. cts.
To gross receipts...	2,031·80	By freight to coast	143·90
„ freight rebate...	16·08	„ shipping charges at coast	158·45
		„ ocean freight	175·94
		„ consolidated rate	109·11
		„ brokerage commissions, etc.	27·83
		„ 10 wool packs...	45·00
		„ balance	1,387·65
	<u>2,047·88</u>		<u>2,047·88</u>

	Sh. cts.
To balance b/d, being net return	1,387·65
„ net return per lb. f.o.r. Nainvasha	28·63

2.—Consignment sold in France: 5 bales A Fleeces, 2,467 lbs.; 1 bale A Pieces, 473 lbs.; 2 bales B Fleeces, 935 lbs.; 1 bale B Pieces, 474 lbs.; 1 bale 3-bred, 448 lbs. Total 11 bales, weighing 5,353 lbs. net.

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Home-grown food	0.2 " " "
Labour	5.8 " " "
Depreciation	24.0 " " "
Bulls, dipping, sundries, etc. ...	6.2 " " "
Total	54.5 " " "

Cost of production of milk per gallon ...	54.5 cents
Total revenue from butter fat sold from	Shs. cts.
25,344 gallons milk separated	5,490.43
Return per gallon milk separated	21.4
Loss per gallon milk sold as butter fat ...	33.1

Note.

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Sh. cts.	By	Sh. cts.
To gross receipts...	freight to coast	158-34
„ freight rebate...	shipping charges	
	at coast	170-57
	ocean freight to	
	Antwerp	189-12
	forwarding coast	
	Antwerp - Ver-	
	viers	36-31
	cost of scouring,	
	sorting, etc.	326-37
	exchange, post	
	charges, etc.	37-24
	11 wool packs...	49-50
	balance	2,827-01
<u>3,794-46</u>		<u>3,794-46</u>

To balance b/d,
being net return 2,827-01
„ net return per
lb. F.o.r. Nai-
vasha ... 52-83

APPENDIX III.

Revenue 1/1/34 to 31/3/35.

The revenue to meet recurrent expenditure involved in the maintenance of the farm is derived from the sales of produce, viz., butter fat, wool and livestock. A summary of the output for the fifteen months from 1/1/34 to 31/3/35 is given below.

Butter fat.—Amount sold	9,065-3 lbs.	Cash return	5,475-04	Shs. cts.
Wool.—Amount sold	10,200 lbs.	Cash return	4,214-66	

STOCK SALES.

Breeding Stock.		Slaughter Stock.	
	Sh. cts.		Sh. cts.
<i>Cattle</i> —			
Bulls (2)	500-00	Steers (34)	1,615-00
		Calves (25)	153-50
		Heifer (1)	15-00
		Cow (1, A.M. & T.)	24-00
<i>Pigs</i> —		Weaners (8)	96-00
Boars (3)	299-75	Baconers (7)	398-39
		Larders (2)	126-64
		Porker (1)	38-00
<i>Native Sheep</i> —		Masai Sheep (274, including lambs)	2,117-40
Masai Rams (4)	81-00		
Persian Ram (1)	60-00		
<i>Grade Merino Flock</i> —		285 Wethers, etc.	3,808-70
37 Young Rams	1,270-00		
90 cull ewes and			
29 lambs	900-00		
Total Sh.	<u>3,110-75</u>	Total Sh.	<u>8,392-63</u>

Total Proceeds from above Sources from 1/1/34 to 31/3/35.

	Sh. cts.
Butter fat	5,475-04
Wool	4,214-66
Breeding Stock	3,110-75
Slaughter Stock	8,392-63
Total	<u>21,193-08</u>

	Sh. cts.		Sh. cts.
To gross receipts...	3,777-79	By freight to coast	158-34
„ freight rebate...	16-67	„ shipping charges	170-57
		„ at coast ...	170-57
		„ ocean freight to	189-12
		Antwerp ...	189-12
		forwarding coast	
		Antwerp - Ver-	
		viers ...	36-31
		„ cost of scouring,	
		sorting, etc. ...	326-37
		„ exchange, post	
		charges, etc....	37-24
		„ 11 wool packs...	49-50
		„ balance ...	2,827-01
	<u>3,794-46</u>		<u>3,794-46</u>

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Butter fat.—Amount sold 9,065-3 lbs. Cash return 5,475-04
Wool.—Amount sold 10,200 lbs. Cash return 4,214-66

STOCK SALES.

	Sh. cts.		Sh. cts.
<i>Breeding Stock.</i>		<i>Slaughter Stock.</i>	
<i>Cattle—</i>			
Bulls (2) ...	500-00	Steers (34) ...	1,615-00
		Calves (25) ...	153-50
		Heifer (1) ...	15-00
		Cow (1, A.M. & T.)	24-00
<i>Pigs—</i>			
Boars (3) ...	299-75	Weaners (8) ...	96-00
		Baconers (7) ...	398-39
		Larders (2) ...	126-64
		Porker (1) ...	38-00
<i>Native Sheep—</i>			
Masai Rams (4)	81-00	Masai Sheep (274,	
Persian Ram (1)	60-00	including lambs)	2,117-40
<i>Grade Merino Flock—</i>			
37 Young Rams	1,270-00	285 Wethers, etc.	3,808-70
90 cull ewes and			
29 lambs ...	900-00		
Total Sh.	3,110-75	Total Sh.	8,392-63

Total Proceeds from above Sources from 1/1/34 to 31/3/35.

Butter fat ...	5,475-04	Sh. cts.
Wool ...	4,214-66	
Breeding Stock ...	3,110-75	
Slaughter Stock ...	8,392-63	
Total ...	<u>21,193-08</u>	

APPENDIX IV.

Valuation of Livestock and Equipment, 31st March, 1935.

	Sh. cts.	Sh. cts.
I.—Livestock on hand:—		
Cattle	39,170-00	
Sheep	20,767-00	
Pigs	2,335-00	
Horses	80-00	
	<u>62,352-00</u>	
II.—Implements and Equipment ...	5,526-55	
III.—Sundry Stores	586-990	
IV.—Foodstuffs on hand	296-87	
V.—Wool (on Market, 5,691 lbs. at -50)	2,845-50	
Total valuation	<u>71,607-82</u>	

Farm Operating Account, 1/1/34 to 31/3/35.

CURRENT ACCOUNT.

<i>Receipts.</i>	Sh. cts.	<i>Expenditure.</i>	Sh. cts.
To balance at Bank 1st Jan., 1934	8,443-96	By Sundry Pay- ments ...	37,317-92
" Cash in hand 1st Jan., 1934	160-88		
" Transfer from fixed deposit 22 Aug., 1934	10,000-00		
" interest on above ...	299-90	" balance at Bk. 31 Mar., 1935	4,946-39
" sundry receipts	23,424-91	" cash in hand...	65-34
	<u>42,329-65</u>		<u>42,329-65</u>

To balance b/d, 31 Mar., 1935	4,946-39
" cash in hand, 31 Mar., 1935	65-34
	<u>5,011-73</u>

Fixed Deposit Account with National Bank of India Ltd.

	Sh. cts.	Sh. cts.
To balance 1 Jan., 1934	10,000-00	By transfer to cur- rent account
" interest on above, 22nd Aug., 1934 ...	299-90	10,299-90
	<u>10,299-90</u>	<u>10,299-90</u>

APPENDIX V.

Financial Summary, 1st January, 1934, to 31st March, 1935.

	Sh. cts.	Sh. cts.
1st January, 1934—		
Bank balance	8,443-96	
Cash	160-88	
Deposit	10,000-00	
	<u>18,604-84</u>	
31st March, 1935—		
Bank Balance	4,946-39	
Cash	65-34	
	<u>5,011-73</u>	
Cash deficit, 15 months' working	<u>13,593-11</u>	

The cash deficit on the period's working amounts to 678 13s. 11 cts. and is mainly accounted for by expenditures totalling 629 16s. 30 cts. on the following items:—

	Sh. cts.
1. Purchase of 6 rams from South Africa, freight, insurance	2,330-12
2. Purchase of 2 large white boars	326-98
3. Purchase of 48 A.M. & T. oxen and railage	3,162-40
4. Purchase of farm implements, wagon rail-age	1,910-18
5. Purchase of new separator	333-00
6. Hire and repair of tractor, fuel, and oil	698-96
7. Farm wages expended on construction, development, and experimental work	1,546-00
8. Small tools for construction and development	167-59
9. Materials for construction and development	1,384-64
10. Lucerne, maize and root seeds	387-35
11. Charges against printing 1932 and 1933 Reports	349-08
	<u>12,596-30</u>

GOVERNMENT FARM, NAIVASHA.

Valuation of Livestock as at 31st March, 1935.

	Sh. cts.	Sh. cts.
<i>Cattle—</i>		
Work Oxen, 58 @ 60/-	3,480-00	
Grade Steers, 36 @ 40/-	1,440-00	
Bulls, Ayr. Luck of O'Leshau	1,200-00	
Bulls, Ayr. Marcus O'Leshau	1,000-00	
Bulls, Grade ex Luxford	300-00	
Bulls, Shorthorn	200-00	
Bulls, Lumbwa	100-00	
Grade Cows, 111 @ 200/-	22,200-00	
Lumbwa Cows, 19 @ 60/-	1,140-00	
Grade Heifers, 76 @ 85/-	6,460-00	
Lumbwa Heifers, 2 @ 30/-	60-00	
Grade Calves, 49 @ 30/-	1,470-00	
Lumbwa Calves, 12 @ 10/-	120-00	
	<u>39,170-00</u>	

Pigs—

Boar, Micklegate William	200-00
Boar, Kanati Roseberry	100-00
Sow, Nsa. Majors Wonder IV	200-00
Sow, Nsa. Majors Wonder V	150-00
Sow, Nsa. Majors Wonder VI	150-00
Sow, Nsa. Majors Wonder VII	150-00
Sow, Nsa. Majors Wonder VIII	150-00
Sow, L. White ex Canada Farm... ..	80-00
Bacon Pigs, 14 @ 60/-	840-00
Sucklers, 45 @ 7/00	315-00

2,335-00

APPENDIX V.

Financial Summary, 1st January, 1934, to 31st March, 1935.

	Sh. cts.	Sh. cts.
1st January, 1934—		
Bank balance	8,443-96	
Cash	160-88	
Deposit	10,000-00	
	<u>18,604-84</u>	
31st March, 1935—		
Bank Balance	4,946-39	
Cash	65-34	
	<u>5,011-73</u>	
Cash deficit, 15-months' working		<u>13,593-11</u>

The cash deficit on the period's working amounts to 678 13s. 11 cts. and is mainly accounted for by expenditures totalling 1,629 16s. 30 cts. on the following items:

	Sh. cts.
1. Purchase of 6 rams from South Africa, freight, insurance	2,330-12
2. Purchase of 2 large white boars	326-98
3. Purchase of 48 A.M. & T. oxen and railage	3,162-40
4. Purchase of farm implements, wagon rail-age	1,910-18
5. Purchase of new separator	333-00
6. Hire and repair of tractor, fuel, and oil	698-96
7. Farm wages expended on construction, development, and experimental work	1,546-00
8. Small tools for construction and development	167-59
9. Materials for construction and development	1,384-64
10. Lucerne, maize and root seeds	387-35
11. Charges against printing 1932 and 1933 Reports	349-08
	<u>12,596-30</u>

GOVERNMENT FARM, NAIVASHA.

Valuation of Livestock as at 31st March, 1935.

	Sh. cts.	Sh. cts.
<i>Cattle—</i>		
Work Oxen, 58 @ 60/-	3,480-00	
Grade Steers, 36 @ 40/-	1,440-00	
Bulls, Ayr. Luck of O'Leshau	1,200-00	
Bulls, Ayr. Marcus O'Leshau	1,000-00	
Bulls, Grade ex Luxford	300-00	
Bulls, Shorthorn	200-00	
Bulls, Lumbwa	100-00	
Grade Cows, 111 @ 200/-	22,200-00	
Lumbwa Cows, 19 @ 60/-	1,140-00	
Grade Heifers, 76 @ 85/-	6,460-00	
Lumbwa Heifers, 2 @ 30/-	60-00	
Grade Calves, 49 @ 30/-	1,470-00	
Lumbwa Calves, 12 @ 10/-	120-00	
		<u>39,170-00</u>

Pigs—

Boar, Micklegate William	200-00
Boar, Kanati Roseberry	100-00
Sow, Nsa. Majors Wonder IV	200-00
Sow, Nsa. Majors Wonder V	150-00
Sow, Nsa. Majors Wonder VI	150-00
Sow, Nsa. Majors Wonder VII	150-00
Sow, Nsa. Majors Wonder VIII	150-00
Sow, L. White ex Canada Farm... ..	80-00
Bacon Pigs, 14 @ 60/-	840-00
Sucklers, 45 @ 7/00	315-00

2,335-00

Sheep—

I Merino Rams, 3 @ 378/-	...	1,134-00	
I Merino Rams, 2 @ 351/-	...	702-00	
I Merino Ram, 1 @ 20/-	...	20-00	
I Merino Rams, 2 @ 150/-	...	300-00	
I Merino Rams, 3 @ 100/-	...	300-00	
Grade Merino Rams, 7 @ 70/-	...	490-00	
Grade Merino Ewes, 560 @ 22/50	12,600-00		
Grade Merino Hoggets, 396 @ 10/-	3,960-00		
Grade Merino Lambs, 96 @ 4/-	...	384-00	
Persian Rams, 2 @ 60/-	}	...	150-00
1 @ 30/-			
Persian Ewes, 16 @ 40/-	...	640-00	
Persian Lambs, 6 @ 5/-	...	30-00	
Masai Ewes, 8 @ 6/-	...	48-00	
Masai Lambs, 3 @ 3/-	...	9-00	
			20,767-00

Ponties—

Bay Gelding, blind one eye	...	80-00	
			80-00
Donkeys, 2, on transfer from Veterinary Department	...		
			Shs. 63,252-00

NOTES ON THE ECONOMIC RESULTS OF THE GOVERNMENT STOCK-FARM, NAIVASHA.

1933—1935 *

The results of the commercial side of the farm were analysed for the year 1931 (*vide* Agricultural Department Bulletin No. 27 of 1932). It is now desired to bring the experience gained up to date, in the hope that the results will prove of interest and will not be without some value. In the detailed analysis of the economic working of the farm it has been necessary to omit the year 1932, for which detailed information is not available.

The general financial results of the period may be summarised as follows:—

	1932	1933	1934	January— March 1935
	Shs.	Shs.	Shs.	Shs.
Cash Balance	3036-22	2470-12	14247-00	653-89
Increase or decrease in valuation	7186-65	3408-41	5573-43	3701-20
NET PROFIT OR LOSS	10201-87	5878-53	8688-57	3647-31

The period January—March 1935 is included to bring the information down to the date on which the farm ceased to be operated on the old basis. Under the old basis the farm was run partly as a demonstration commercial farm and partly as a research centre, in collaboration with the Rowett Research Institute. The salaries of research workers were provided by the Institute, a provision which in actual practice covered the commercial management of the farm. As from April 1st, 1935, the farm is being operated primarily as a research centre and the entire financial responsibility has been assumed by the Rowett Research Institute.

The figures given below need some qualification. Salaries of managers have not been included, being covered by research grants. The cost of experimental work, except as regards salaries, does however appear. As the farm is

* The manager's reports have been freely drawn upon in explaining the figures.

Sheep—

I Merino Rams, 3 @ 378/-	...	1,134-00
I Merino Rams, 2 @ 351/-	...	702-00
I Merino Ram, 1 @ 20/-	...	20-00
I Merino Rams, 2 @ 150/-	...	300-00
I Merino Rams, 3 @ 100/-	...	300-00
Grade Merino Rams, 7 @ 70/-	...	490-00
Grade Merino Ewes, 560 @ 22/50	12,600-00	
Grade Merino Hoggets, 396 @ 10/-	3,960-00	
Grade Merino Lambs, 96 @ 4/-	...	384-00
Persian Rams, 2 @ 60/-	}	...
1 @ 30/-		
Persian Ewes, 16 @ 40/-	...	640-00
Persian Lambs, 6 @ 5/-	...	30-00
Masai Ewes, 8 @ 6/-	...	48-00
Masai Lambs, 3 @ 3/-	...	9-00
		<u>20,767-00</u>

Ponies—

Bay Gelding, blind one eye	...	80-00
		<u>80-00</u>
Donkeys, 2, on transfer from Veterinary Department	...	
		<u>Shs. 63,252-00</u>

NOTES ON THE ECONOMIC RESULTS OF THE GOVERNMENT STOCK-FARM, NAIVASHA.

1933—1935.*

The results of the commercial side of the farm were analysed for the year 1931 (*vide* Agricultural Department Bulletin No. 27 of 1932). It is now desired to bring the experience gained up to date, in the hope that the results will prove of interest and will not be without some value. In the detailed analysis of the economic working of the farm it has been necessary to omit the year 1932, for which detailed information is not available.

The general financial results of the period may be summarised as follows:—

	1932	1933	1934	January— March 1935
Cash Balance	Shs. 3036-22	Shs. 2470-12	Shs. 14247-00	Shs. 653-89
Increase or decrease in valuation	7185-63	3408-41	5573-33	3701-20
NET PROFIT OR LOSS	10201-59	5878-53	8683-37	3941-31

The period January—March 1935 is included to bring the information down to the date on which the farm ceased to be operated on the old basis. Under the old basis the farm was run partly as a demonstration commercial farm and partly as a research centre, in collaboration with the Rowett Research Institute. The salaries of research workers were provided by the Institute, a provision which in actual practice covered the commercial management of the farm. As from April 1st, 1935, the farm is being operated primarily as a research centre and the entire financial responsibility has been assumed by the Rowett Research Institute.

The figures given below need some qualification. Salaries of managers have not been included, being covered by research grants. The cost of experimental work, except as regards salaries, does however appear. As the farm is

* The manager's reports have been freely drawn upon in explaining the figures.

Government property, no charge has been entered for rent or for the annual value of the land utilised, or for interest on the capital cost of buildings and improvements. Interest received on bank deposits is entered.

The financial result for the whole period covered by the above figures is a net loss of Sh. 5,629-51.†

The chief adverse factors which have contributed to this result are the severe drought during the major part of the period, locust infestation, quarantine restrictions due to the presence of East Coast Fever, and the fall in prices of butter-fat and livestock which has taken place.

The rainfall records on the farm from 1932 onwards are as follows:—

RAINFALL RECORD AT GOVERNMENT FARM, NAIVASHA.

	1932	1933	1934	1935
January	0-00	0-05	0-00	0-17
February	0-00	0-00	0-00	1-19
March	1-70	0-67	0-69	0-74
April	1-69	1-47	1-67	4-01
May	3-90	1-64	3-29	0-94
June	1-15	1-02	0-88	3-70
July	0-00	0-95	1-01	0-00
August	2-81	2-64	1-15	
September	1-40	1-28	0-81	
October	1-70	1-56	0-31	
November	0-80	0-38	1-47	
December	1-90	1-38	0-60	
	17-05	13-04	11-78	

The quarantine restrictions, which were not removed until August, 1934, had the effect of preventing the utilisation during the drought period of land near the lake, which, owing to the presence of subsoil water, continued to produce some forage. The cattle were in consequence restricted to the dry land on the north side of the main Nairobi—Nakuru road. This land is naturally of a semi-arid nature; from a dairying point of view it is decidedly unsuitable.

† The valuations on which the above is based differ slightly from the summary given in the manager's report, as the latter does not include the values of new cultivations and constructions carried to Capital Account.

being typical merino sheep land. The accounts throughout reflect this comparative suitability for sheep and inferiority for dairy purposes.

Returns from sale of butter-fat continued to decline, as the following average receipts per lb. show:—

1932	79-6 cents per lb.
1933	71-0 " " "
1934	60-1 " " "
1935 (January—March) ...	62-0 " " "

These prices may be contrasted with the 85 cents for 1931, and 113 cents for 1930.

Some decrease occurred in sale values of livestock. Thus, while in 1931 steers realised an average of Sh. 97-66, the average price obtained during 1933 and 1934 was Sh. 80-30 and Sh. 47-50 respectively. In part this decrease reflects the poor condition of the animals during the recent drought. Wethers realised Sh. 13 and 13-38 in the two last-mentioned years. Work oxen which were valued at an average of Sh. 127-50 per head in January, 1932, were written down to an average of Sh. 70 in March, 1935, purchases having been made at the latter figure during the last two years.

THE COST ACCOUNTS.

A system of detailed cost accounting has been maintained until the close of the period. The system was modelled on that first made familiar in England by C. S. Orwin. The costs and returns applicable to the various producing departments of the farm are booked against the particular departments, and general charges are afterwards apportioned amongst the producing departments on some pre-arranged plan. When it is necessary to transfer livestock or produce from one department to another, the value used in the book entry is based on the total cost of production to date.

As previously mentioned, the cost accounts for the Naivasha stock farm do not include any charge for the value of the land used for grazing, nor for interest on development capital. An allowance is, however, made for depreciation.

The chief departments concerning which it will be of value to examine the results will be the grade cattle herd,

used for milk production, the grade Merino flock and the pigs. These are dealt with in turn in the following pages, and the results analysed. It is to be regretted that owing to the untimely death of Mr. H. Gunn, M.A., B.Sc., the material for compiling the cost accounts for the year 1933 was lost, and the following information, therefore, covers only the period from January 1st, 1933, to March 31st, 1935.

THE DAIRY HERD.

A herd of some 110 grade cows is maintained, run mainly on commercial lines, though some experimentation has been carried out on groups. During the period under review the economic results have been unfortunate, due to the circumstances which have been referred to above.

The only useful purpose which the figures serve is as an illustration of a weakness in system which, though it is here shown in a degree quite abnormal for the Colony, and even for the particular farm, is in some measure present on the majority of dairy farms. The onset of the drought found the management entirely unprepared, with no stocks of home-grown food on hand. An attempt to meet the situation by growing some forage crops was frustrated by the failure of the rains, and for the same reason it was impossible to secure a supply of veld hay.

By the beginning of 1933 the grass on the homestead side of the farm had practically disappeared, and quarantine restrictions had been for some time in force, preventing resort to the lake-side ground. The cattle were not able to get sufficient food for maintenance from the pastures, and were being maintained on purchased lucerne hay and a liberal allowance of concentrates. By June fifteen of the weaker animals were being fed night and morning with bran and molasses. Deaths were prevalent, a number being due to gastritis, apparently from a desperate resort to unwholesome weeds.

In August the quarantine was raised and the cattle were moved to the lake-side ground. The change unfortunately coincided with an outbreak of foot-and-mouth disease, which occasioned several deaths.

Some 7 inches of rain having fallen towards the end of the year, the herd was brought back from the lake-side ground. The milking cows at this time received 2 lbs.

concentrates per head in addition to the amount necessary for the milk they were producing. The grazing steadily deteriorated again during the early months of 1934, and in May the cows were receiving 4 lbs. of concentrates for maintenance and the first gallon and the usual production allowance for additional quantities. The mixture in use was composed of bran, crushed maize and simsim cake in the proportion of two part, one part and one part respectively.

The grazing improved slightly during June, July, and August, but was still sparse. From October green lucerne was purchased and fed in addition to concentrates at the rate of 20 lbs. per head per day. This was later increased to 30 lbs., the concentrates being reduced to 3 lbs. of a mixture of equal parts of bran and simsim cake.

The financial results were as follows:—

MILK PRODUCTION. RETURNS AND COSTS PER COW.

	1933	1934	Jan.-Mar. 1935
	Sh.	Sh.	Sh.
Cattle	8-32	6-91	3-44
Sales of Produce	40-29	41-10	9-92
GROSS OUTPUT	31-97	34-19	6-48
Labour and Rations	14-85	17-46	4-26
Purchased food	50-20	66-05	21-86
Home-grown food	7-77	4-52	0-56
Veterinary and Dipping	2-47	4-78	1-85
Water Supply	0-84	1-20	0-19
Sundries	6-69	8-96	2-32
TOTAL COSTS	82-79	92-97	31-04
LOSS	50-85	58-78	24-56
Average monthly number of cows in hand	115-0	105-0	112-0
Total milk produced, galls.	181-0	224-0	58-0
Butter-fat sold, lbs.	56-7	68-4	15-9
Average Butter-fat content	3-5	3-6	3-2
Butter-fat fed to calves (estimated) lbs.	6-7	12-6	2-9
Total Butter-fat produced	63-2	81-0	18-8

In this table the herd is taken as a whole, including bulls, heifers, and calves, but not including steers kept for beef purposes.

The item "cattle" represents depreciation on the herd. "Sundries" includes a variety of items, some directly applicable, such as cost of dairy utensils, freight charges, repairs and upkeep, others of an overhead nature, such as upkeep of horses and work oxen (proportion), establishment charges, etc.

It may be of more general interest to convert these figures to the basis of cents per lb. of butter-fat sold, and this is done in the following table:—

MILK PRODUCTION.

RETURNS AND COSTS PER LB. OF BUTTER-FAT SOLD.

	1933.	1934	Jan.—Mar. 1935
	Cents.	Cents.	Cents.
Cattle	14.70	10.08	21.50
Sales of Produce	71.08	60.02	62.00
GROSS OUTPUT	56.39	49.94	40.56
Labour and rations	26.18	25.50	26.65
Purchased food	88.60	81.86	136.76
Home-grown food	13.70	6.61	3.58
Veterinary and dipping	4.36	6.98	11.57
Water Supply	1.49	1.75	1.17
Sundries	11.78	13.09	14.53
TOTAL COSTS	148.11	135.79	194.26
Loss	89.72	85.85	153.70

The main fact which emerges is that the cost of purchased food considerably exceeded the gross value produced. It was necessary under the circumstances to maintain the animals mainly on purchased food. This was difficult to obtain: Lucerne hay and green lucerne were bought in considerable quantity, and as there was a general shortage of fodder in the district high prices had to be paid. During part of the time concentrated foods had to be fed, not only for production but also for the maintenance portion of the

ration. The situation in fact became one of making an effort at any cost to keep the animals alive until the drought should break. A fair average level of production was maintained.

Even had no purchased food been necessary, however, it will be seen that a loss would still have been incurred in 1934 and 1935 at the same level of production.

Calf-Rearing.

The costs of milk production given above cover the dairy herd with its complement of bulls, heifers and calves. It will be of interest to extract the costs debited to calves. The usual accounting practice has been to treat calves as being transferred to the heifer class at twelve months old. Neglecting internal contra items such as separated milk received, the relevant figures are as follows:—

	PER HEAD.		
	1933	1934	Jan.—Mar. 1935
Whole milk fed, galls.	29.7	40.3	15.8
Equivalent to Butter-fat, lbs.	10.4	17.8	4.3
Costs:—Whole milk	Sh. 7.38	Sh. 10.68	Sh. 2.67
Purchased food	15.38	17.30	7.82
Home-grown food	3.72	5.98	0.90
Labour and rations	1.70	3.95	0.63
Veterinary and dipping	1.11	1.64	0.54
Sundries	0.42	3.44	0.53
TOTAL COSTS	29.80	42.99	13.09

The figures in the right-hand column apply to three months only. The whole milk has been charged at butter-fat values.

All calves were hand-reared, with the exception of three pairs in 1933 and four pairs in 1934, which were suckled by foster-mothers. The grazing was not good enough for the foster-mothers and was supplemented with concentrates

In this table the herd is taken as a whole, including bulls, heifers, and calves, but not including steers kept for beef purposes.

The item "cattle" represents depreciation on the herd. "Sundries" includes a variety of items, some directly applicable, such as cost of dairy utensils, freight charges, repairs and upkeep, others of an overhead nature, such as upkeep of horses and work oxen (proportion), establishment charges, etc.

It may be of more general interest to convert these figures to the basis of cents per lb. of butter-fat sold, and this is done in the following table:—

MILK PRODUCTION.

RETURNS AND COSTS PER LB. OF BUTTER-FAT SOLD.

	1933	1934	Jan.—Mar. 1935
	Cents.	Cents.	Cents.
Cattle	14.70	10.08	21.50
Sales of Produce	71.08	60.02	62.00
GROSS OUTPUT	56.89	49.94	40.56
Labour and rations	26.18	26.50	26.65
Purchased food	88.60	81.86	136.76
Home-grown food	13.70	6.61	3.58
Veterinary and dipping	4.36	6.93	11.57
Water supply	1.49	1.75	1.17
Sundries	11.78	13.09	14.53
TOTAL COSTS	148.11	135.79	194.26
Loss	89.72	85.85	153.70

The main fact which emerges is that the cost of purchased food considerably exceeded the gross value produced. It was necessary under the circumstances to maintain the animals mainly on purchased food. This was difficult to obtain. Lucerne hay and green lucerne were bought in considerable quantity, and as there was a general shortage of fodder in the district high prices had to be paid. During part of the time concentrated foods had to be fed, not only for production but also for the maintenance portion of the

ration. The situation in fact became one of making an effort at any cost to keep the animals alive until the drought should break. A fair average level of production was maintained.

Even had no purchased food been necessary, however, it will be seen that a loss would still have been incurred in 1934 and 1935 at the same level of production.

Calf-Rearing.

The costs of milk production given above cover the dairy herd with its complement of bulls, heifers and calves. It will be of interest to extract the costs debited to calves. The usual accounting practice has been to treat calves as being transferred to the heifer class at twelve months old. Neglecting internal contra items such as separated milk received, the relevant figures are as follows:—

PER HEAD.

	1933	1934	Jan.—Mar. 1935
Whole milk fed, galls.	29.7	49.3	15.8
Equivalent to Butter-fat, lbs.	10.4	17.8	4.3
COSTS:—	Sh.	Sh.	Sh.
Whole milk	7.38	10.68	2.67
Purchased food	15.98	17.30	7.82
Home-grown food	3.72	5.98	0.90
Labour and rations	1.70	3.95	0.63
Veterinary and dipping	1.11	1.64	0.54
Sundries	0.42	3.44	0.53
TOTAL COSTS	29.80	42.99	13.09

The figures in the right-hand column apply to three months only. The whole milk has been charged at butter-fat values.

All calves were hand-reared, with the exception of three pairs in 1933 and four pairs in 1934, which were suckled by foster-mothers. The grazing was not good enough for the foster-mothers and was supplemented with concentrates

fed to the dams and to the calves from one month upwards. These suckled calves compared favourably at weaning with those entirely hand-reared. (This comparison, it should be noted, does not apply to the case, so common on dairy farms, where the dam is partly milked out by hand the calf allowed to suck an uncertain quantity from the cow.)

The hand-reared calves were fed entirely on whole milk for the first three weeks, increasing gradually to a maximum of one gallon per day. From the third to the sixth week a gradual change-over to separated milk was made, until at six weeks the calves were receiving $1\frac{1}{2}$ gallons of separated milk per day. During the sixth month the separated milk would normally have been discontinued, but owing to the lack of pasture it was continued whenever available. Concentrates, in the form of a mixture of one part simsim cake to three parts bran, were offered after the age of one month, commencing at $\frac{1}{2}$ lb. per head per day and increasing to 2 lbs. per head by the end of the fourth month. Bone meal and salt were included in the concentrate mixture in the proportion of 3 per cent. by weight. Veld hay or green lucerne was given for roughage, each calf having consumed some 400 lbs. of hay at the age of six months. On account of the bareness of the pastures it was necessary to continue the feeding of roughage also beyond the sixth month. The lack of bedding was a drawback, as it was difficult to keep the calves comfortable in their pens.

The quantity of separated milk fed in addition to the whole milk mentioned above amounted to 139 gallons per head in 1933, 256 gallons in 1934, and 71 gallons for the first three months of 1935. No charge has been made for the separated milk in the costs above, because as a waste product it has no intrinsic money value, but only a derived value from the products into which it can be converted on the farm.

As an example of hand-rearing results the figures have a special interest. It is seen that calves can be successfully reared on a total of 18 lbs. of butter-fat or less. Suckled calves probably consume a quantity greatly in excess of this. The mortality figures are also interesting

	1933	1934	Jan.—Mar. 1935
Average monthly number alive on the farm ...	74	48	48
Total deaths during the year, of which—	40	36	7
Bull calves killed at birth ...	14	26	2
Foot-and-Mouth disease ...	9	—	—
Scour ...	6	2	1
Debility at birth ...	1	2	—
Accidents and miscellaneous ...	10	6	4

It will be seen that the proportion of deaths which can be attributed to hand-rearing is very small.

The costs of feeding have naturally been influenced by the same factors which have given rise to the high costs on the dairy herd as a whole.

It might be argued that the cost of bulls is incurred with a view to obtaining calves though reproduction is a necessary preliminary to the secretion of milk by cows. At all events it will be useful to trace the accumulation of costs on the cattle up to the time of their entry into the milking herd. Charges debited to bulls amounted to Sh. 946.35 in 1933, Sh. 1,084.46 in 1934 and Sh. 339.90 in the first three months of 1935. Divided amongst the calves these become Sh. 12.80, Sh. 22.60, and Sh. 7.09 for the three months of 1935.

The cost per head of rearing heifers worked out as follows:—

PER HEAD.

	1933	1934	Jan.—Mar. 1935
Total cost	Sh. 5-05	Sh. 5-70	Sh. 1-80

The heifers received no supplementary food, the costs debited to them consisting of labour, veterinary and dipping and general charges.

The total cost of bringing a heifer into the herd therefore appears from the books as follows, if we suppose the heifer to calve down at three years old:—

fed to the dams and to the calves from one month upwards. These suckled calves compared favourably at weaning with those entirely hand-reared. (This comparison, it should be noted, does not apply to the case, so common on dairy farms, where the dam is partly milked out by hand the calf allowed to suck an uncertain quantity from the cow.)

The hand-reared calves were fed entirely on whole milk for the first three weeks, increasing gradually to a maximum of one gallon per day. From the third to the sixth week a gradual change-over to separated milk was made, until at six weeks the calves were receiving $1\frac{1}{2}$ gallons of separated milk per day. During the sixth month the separated milk would normally have been discontinued, but owing to the lack of pasture it was continued whenever available. Concentrates, in the form of a mixture of one part simsim cake to three parts bran, were offered after the age of one month, commencing at $\frac{1}{2}$ lb. per head per day and increasing to 2 lbs. per head by the end of the fourth month. Bone meal and salt were included in the concentrate mixture in the proportion of 3 per cent. by weight. Veld hay or green lucerne was given for roughage, each calf having consumed some 400 lbs. of hay at the age of six months. On account of the bareness of the pastures it was necessary to continue the feeding of roughage also beyond the sixth month. The lack of bedding was a drawback, as it was difficult to keep the calves comfortable in their pens.

The quantity of separated milk fed in addition to the whole milk mentioned above amounted to 139 gallons per head in 1933, 256 gallons in 1934, and 71 gallons for the first three months of 1935. No charge has been made for the separated milk in the costs above, because as a waste product it has no intrinsic money value, but only a derived value from the products into which it can be converted on the farm.

As an example of hand-rearing results the figures have a special interest. It is seen that calves can be successfully reared on a total of 18 lbs. of butter-fat or less. Suckled calves probably consume a quantity greatly in excess of this. The mortality figures are also interesting

	1933	1934	Jan.—Mar. 1935
Average monthly number alive on the farm ...	74	48	48
Total deaths during the year, of which:—	40	36	7
Bull calves killed at birth	14	26	—
Foot-and-Mouth disease	9	—	2
Scour	6	2	—
Debility at birth	1	2	1
Accidents and miscellaneous	10	6	4

It will be seen that the proportion of deaths which can be attributed to hand-rearing is very small.

The costs of feeding have naturally been influenced by the same factors which have given rise to the high costs on the dairy herd as a whole.

It might be argued that the cost of bulls is incurred with a view to obtaining calves though reproduction is a necessary preliminary to the secretion of milk by cows. At all events it will be useful to trace the accumulation of costs on the cattle up to the time of their entry into the milking herd. Charges debited to bulls amounted to Sh. 946.35 in 1933, Sh. 1,084.46 in 1934 and Sh. 339.90 in the first three months of 1935. Divided amongst the calves these become Sh. 12.80, Sh. 22.60, and Sh. 7.09 for the three months of 1935.

The cost per head of rearing heifers worked out as follows:—

PER HEAD.

	1933	1934	Jan.—Mar. 1935
Total cost	Sh. 5.05	Sh. 5.70	Sh. 1.80

The heifers received no supplementary food, the costs debited to them consisting of labour, veterinary and dipping and general charges.

The total cost of bringing a heifer into the herd therefore appears from the books as follows, if we suppose the heifer to calve down at three years old:—

	1933	1934
	Sh.	Sh.
Cost of bulls	12-80	22-60
Rearing the calf	29-80	42-99
Yearling stage	5-05	5-70
Third year	5-05	5-70
	52-70	76-99

The second item would have been considerably reduced had adequate nutritious grazing been available, or sufficient home-grown forage.

Steers.

The practice latterly has been to kill off bull calves soon after birth. In earlier years, however, they were run on for beef purposes, and animals from other classes, if unsuitable for their particular purposes, have been transferred into the steer class. Prices obtained for steers have been very low during the period under consideration. The animals have not received any supplementary food and have been in such poor condition that their value has been low.

The average number of steers on the farm was 87 in 1933, 41 in 1934 and 37 in the first three months of 1935. The steers actually lost in gross value during the period—that is to say they failed to realise the values at which they were charged on transfer into the steers' account. The relevant particulars are as follows:

PER HEAD.

	1933	1934	Jan.—Mar. 1935
Gross output	-1-91	-58-00	8-93
Purchased food	—	0-87	—
Labour	1-35	3-36	0-86
Veterinary and dipping	1-23	3-18	0-06
Sundries	1-56	4-16	0-44
TOTAL COSTS	4-14	11-57	1-36
LOSS	6-05	69-57	—
PROFIT	—	—	7-57

The minus figures of gross output in 1933 and 1934 represent loss of value of the animals. They are influenced largely by the values per head placed upon the animals at the end of each accounting period, this factor accounting partly for the great loss in 1934 followed by an increase in 1935. The figures are further influenced by the number of deaths, which amounted to 15 in 1933, 18 in 1934, and two in the three months of 1935.

The figures have been kept separate from those of the dairy herd, as it is considered that the raising of steers is not a necessary part of the complement of a dairy herd. In normal times, the local market being very limited, it may pay to kill bull calves soon after birth rather than incur the cost of rearing them to the beef stage.

Forage Cropping.

It has been evident for some years that something in the nature of supplementary feeding for the dairy herd is a necessity. Purchased concentrates are too expensive for use except on a limited scale at the prices ruling for livestock and produce. The main part of the farm is situated unfavourably for the raising of forage crops, the rainfall being low and erratic. The farm includes an area beside the lake, however, in which subsoil water allows the growth of forage crops even in dry seasons, provided that a plant can be obtained.

In March 1935 an area of 15 acres near the homestead was ploughed up for an ensilage crop. So far it has been impossible to raise a crop on this land.

About the same time a start was made to establish an area of lucerne near the lake—four acres were cleared and three acres were planted—followed in September of the same year by a further 1½ acres, which however died out. By the end of the year the following expenditure had been incurred, the total costs being divided over the three acres remaining—

	1933	1934
	Sh.	Sh.
Cost of bulls	12-80	22-60
Rearing the calf	29-80	42-99
Yearling stage	5-05	5-70
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About the same time a start was made to establish an area of lucerne near the lake—four acres were cleared and three acres were planted—followed in September of the same year by a further 14 acres, which however died out. By the end of the year the following expenditure had been incurred, the total costs being divided over the three acres remaining:

	Costs per Acre
	Sh.
Small tools and depreciation on implements ...	13-66
Seed	38-73
Work Oxen (proportion of upkeep)	31-08
Labour and rations	79-67
Transport	10-78
	173-92

Some 6½ tons of forage was obtained during the year. In 1934 the area yielded 15 tons of dry hay, the costs charged against it being as follows:—

	Per Acre	Per ton hay
	Sh.	Sh.
Seed	8-50	1-70
Freight	2-06	0-41
Labour and rations	64-29	12-86
Repairs	6-13	1-23
Ox work	19-87	3-97
Transport	10-63	2-13
TOTAL	111-48	22-30

Even when allowance is made for the cost of establishment, this represents a considerable saving on the cost of purchased lucerne hay.

Efforts to grow maize for green fodder and for ensilage have been less successful. As already stated, the attempts on the homestead land have been abortive. An area of root crops sown during the short rains of 1934, including giant rape, marrow stem kale, drumhead cabbage, mangolds and sugar beet similarly failed to survive. Clearing and breaking operations were, however, continued on the lake-side ground and by March, 1935, 90 acres had been prepared for planting. Much of this was formerly covered with papyrus. At the time of writing this area is carrying a maize crop which varies from light at the side away from the lake to luxuriant on the side towards the lake. A considerable amount of ensilage should be obtained from it. A small area of napier grass has also been established.

The costs debited to cultivation include costs incurred on the homestead *shamba*. The 1933 costs may be con-

sidered as applying to the 15 acres of maize on the homestead land, which failed, and the 1934 and 1935 costs may be attributed to this and to the 90 acres prepared for planting on the lakeside. On this basis the figures are as follows:—

	Per Acre
1933	Sh.
Seed	1-13
Labour and rations	7-21
Transport	3-96
Ox work	5-19
Use of implements	3-81
Sundries	0-45
	21-75

This did not include any harvesting costs. The costs are unusually heavy, but no explanation of the circumstances is now available.

	1934 Per Acre	Jan.—Mar. 1935 Per Acre
	Sh.	Sh.
Seed	1-02	—
Labour and rations	6-12	2-73
Tractor work (contract)	6-86	—
Horses upkeep	2-08	0-71
Ox work	2-49	1-16
Implements	5-17	0-69
Transport	1-61	—
Sundries and establishment charges	0-73	0-62
	25-88	5-91

All but a small portion of this expenditure is of a capital nature and is carried to capital account as unexhausted improvements.

In 1934 some veld hay was made on a paddock at the Veterinary Quarantine Station, Naivasha. The cost of harvesting 6½ tons of hay amounted to Sh. 43-15 per ton.

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Capital Expenditure.

The programme of utilisation of the lakeside ground necessitated capital expenditure, which influenced the cash position to a considerable extent. The chief items were:—

Provision of well, hand pump
and drinking trough ... (cost not known)

New implements—(bought in 1934):—

Seed drill Sh.	300-00	
Maize planter	200-00	
Disc plough	200-00	
Disc harrow	180-00	
Chain harrow	70-00	
Cambridge roller	120-00	
Jumbo plough	60-00	
Yokes and chains	111-50	Sh. 12,280-00

Work oxen (increase from January, 1935
to March, 1935) 33 at Sh. 60/- 1,980-00

The provision of water supply on the lakeside ground was not separately entered in the books, but formed part of a programme of improvement, which included also renovation of the manager's house, which had been unoccupied for some years, erection of a new byre for the cows isolated for contagious abortion, a new cattle crush and fencing, reconstruction of calf house and calving sheds, construction of a concrete wallow in the pig yard, and other repair works, the total cost of which, carried to capital account amounted to Sh. 2,213-10.

Grade Merino Flock.

The results with the grade Merino sheep have been more favourable than with the cattle, the dry weather proving well suited to this class of stock. The main facts concerning numbers are as follows:—

	1933	1934	Jan.—Mar. 1935
<i>Average Monthly Numbers:—</i>			
Merino Rams	8	11	11
Grade Merino Rams	5	42	9
.. Ewes	411	509	565
.. Hoggets	488	480	383
.. Lambs	133	299	116
<i>Total number of Births:—</i>	143	595	10
<i>Deaths:—</i>			
Ewes	30	44	18
Hoggets	37	40	6
Lambs	12	45	23
Grade Rams	1	1	1
Pure-bred Rams	2	1	—
<i>Sales:—</i>			
Ewes	—	3	90
Hoggets and Wethers	2	230	80
Lambs	—	2	29
Grade Rams	—	5	34

Four Merino rams were imported from South Africa in 1932. These having proved satisfactory, a further importation of six rams was made in 1934. The cost of these rams on the farm was:—

	Per Head	Sh.
Coast and freight	346-17
Insurance	33-46
Railway, etc.	22-01
TOTAL	401-64

1934 was a somewhat difficult year, in that owing to the absence of grazing on the northern portion of the farm the sheep had to be moved to the lakeside ground, which is inferior as a sheep pasture. Heavy tick and scab infestation resulted.

The costs and returns may conveniently be calculated on the basis of per 100 ewes with their complement of rams, hoggets and lambs. On this farm the complement was:—

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	1933	1934	Jan.—Mar. 1935
Ewes	100	100	100
Merino Rams	1-95	2-16	1-95
Grade Merino Rams	1-22	8-25	1-59
Hoggets	118-80	94-30	87-58
Lambs	0-32	58-70	20-54
TOTAL	222-29	263-41	191-66

GRADE MERINO FLOCK.

COSTS AND RETURNS PER 100 EWES.

	1933	1934	Jan.—Mar. 1935
	Sh.	Sh.	Sh.
Livestock	625-03	862-97	152-37
Wool	1,009-61	828-01	506-41
GROSS OUTPUT	1,534-64	1,690-98	354-04
Costs—			
Purchased foods	55-27	48-47	27-96
Home-grown foods	14-08	6-24	0-37
Labour and rations	195-36	251-73	70-17
Veterinary and dipping	4-71	98-02	152-57
Horses upkeep	37-54	33-04	6-06
Ox work	4-14	2-91	0-71
Establishment charges and sundries	128-58	66-87	32-89
TOTAL COSTS	433-78	507-26	290-73
BALANCE (profit)	1,101-36	1,183-72	63-31

Below are given details of wool production and realisation for 1932, 1933 and 1934. Up to the time of writing no details had been received in respect of a consignment exported in the early months of 1935.

WOOL REALISATION.

	1932		1933		1934	
	U.K.	FRANCE	U.K.	FRANCE	U.K.	FRANCE
Consignment to ...						
Consignment weight lbs. ...	3597	3474	4253	3153	4847	5353
Date of consignment ...	Oct.	Oct.	Sept.	Sept.	July	July
	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>
Gross Realisation...	48-20	68-03	65-33	94-78	41-82	70-60
Railage	2-98	2-99	3-08	2-85	2-98	2-95
Shipping Charges	2-74	3-28	4-21	4-37	3-26	3-18
Ocean freight (less rebate)	8-41	9-76	4-35	9-22	3-31	3-22
Post-c.i.f. costs and charges	3-27	17-61	3-70	14-30	3-74	8-42
TOTAL COSTS	17-40	83-64	15-32	30-78	13-19	17-77
Net realisation f.o.r.	30-80	34-39	50-01	64-00	28-63	52-83

It will be seen that consignments to France have consistently given the better returns, by a considerable margin.

The total wool clip per 100 Ewes (including their complement of other sheep) was:—

1933	1,803 lbs.
1934	2,005 lbs.
1935 January—March	985 lbs.

Pigs.

The pig enterprise has suffered various vicissitudes and the results over the period under review are generally unfavourable. In 1931 an outbreak of swine fever made it necessary to slaughter all the pigs on the farm at that time. Foundation stock was purchased and attention was concentrated on founding a new herd. In August, 1934, how-

	1933	1934	Jan.—Mar. 1935
Ewes	100	100	100
Merino Rams	1-95	2-16	1-95
Grade Merino Rams	1-22	8-25	1-59
Hoggets	118-80	94-30	67-58
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	Sh.	Sh.	Sh.
Livestock	625-53	862-97	—152-37
Wool	1,009-61	828-01	506-41
GROSS OUTPUT	1,535-14	1,690-98	354-04
Costs—			
Purchased foods	55-27	48-47	27-96
Home-grown foods	10-08	6-24	0-37
Labour and rations	198-36	251-73	70-17
Veterinary and dipping	2-71	98-02	152-57
Horses upkeep	37-84	33-04	6-06
Ox work	1-14	2-91	0-71
Establishment charges and sundries	128-58	56-87	32-89
TOTAL COSTS	433-76	507-26	290-73
BALANCE (profit)	1,101-36	1,183-72	63-31

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Consignment weight lbs. ...	3597	3474	4253	3153	4847	5353
Date of consignment ...	Oct.	Oct.	Sept.	Sept.	July	July
	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>	<i>Cents per lb.</i>
Gross Realisation... ..	48-20	68-03	65-33	94-78	41-82	70-60
Railage	2-98	2-99	3-08	2-85	2-98	2-95
Shipping Charges	2-74	3-28	4-21	4-37	3-26	3-18
Ocean freight (less rebate)	8-41	9-76	4-35	9-22	3-31	3-22
Post—c.i.f. costs and charges	3-27	17-61	3-70	14-30	3-74	8-42
TOTAL COSTS	17-40	33-64	15-32	30-78	13-19	17-77
Net realisation f.o.r.	30-80	34-39	50-01	64-00	28-63	52-83

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ever, foot and mouth disease broke out, coinciding unfortunately with the farrowing period, and three litters were lost. There have been difficulties also with supply of food and bedding; several sows farrowed down with udder troubles and were unable to rear their litters.

The vital statistics relating to the pig herd are as follows:

	1933	1934	Jan.—Mar. 1935
Average monthly No. ...	29	24	48
Total Births during year ...	47	32	48
„ Deaths „ ...	27	9	3
„ Sales „ ...	44	20	1

The costs and returns are as follows:—

	1933	1934	Jan.—Mar. 1935
	Sh.	Sh.	Sh.
GROSS OUTPUT	1680-87	532-90	1416-00
Costs—			
Purchased foods	1685-03	1234-49	540-59
Home-grown foods	61-24	30-50	1-00
Labour and rations	170-90	179-09	40-11
Veterinary	11-13	—	—
Establishment and sundries	226-37	271-52	60-42
TOTAL COSTS	2164-27	1744-59	642-12
BALANCE	479-40	2577-49	472-58
	(Loss)	(Loss)	(Profit)

In these accounts no entry has been made for separated milk fed, nor for bull calves slaughtered and fed to the pigs. As these are waste products, only an arbitrary value can be assigned to them, the entering of which does more to confuse than to clarify the results.

V. LIVERSAGE,

Agricultural Economist.

East African Department,
Colonial Office.

RECEIVED
- 5 DEC 1935

With reference to our telephone conversation to
we confirm that the typescript of the Report of the Naivasha
Livestock Research Station forwarded with Colonial Office
No. 38043/1/35 of the 30th November is headed as follows:-

LIVESTOCK RESEARCH STATION,
NAIVASHA.

REPORT FOR THE PERIOD 1st JANUARY, 1934 TO 31st MARCH,
=====


Further, the period of fifteen months is specially mentioned
several places in the report and the appendices are made to
cover the period from the 1st January, 1934 to the 31st March
1935.

In the circumstances we suggest that the report
be entitled:-

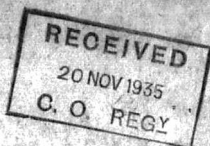
NAIVASHA LIVESTOCK RESEARCH STATION

REPORT FOR THE PERIOD 1st JANUARY, 1934 TO 31st MARCH,
=====

and shall be glad to receive your confirmation as soon as possible


Stores Department,
Crown Agents' Office.
4th December, 1935.

MEMO
No. 54 B.



21. OCTOBER, 1935.

Sir,

17050/31

With reference to paragraph 9 of Sir Philip Cunliffe-Lister's despatch No. 72 of the 29th January, 1935, I have the honour to forward the report of the Malvasha Livestock Research Station for the period 1st January, 1934 to the 31st March, 1935, together with the audited statements of the Malvasha Farm Operating Account and the Malvasha Farm Fund Account for the year ending the 31st March, 1935.

2. It is understood that the report will be printed in England at the expense of the Malvasha Farm Account.

I have the honour to be,

Sir,

Your most obedient, humble servant,

J. BYRNE.

BRIGADIER-GENERAL
GOVERNOR

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= Mansard (D)

THE RIGHT HONOURABLE,
RALPH B. SPENCER, F.C.S., M.P.,
SECRETARY OF STATE FOR THE COLONIES,
DOWNING STREET,
LONDON, S. W. 1.